The Analysts Journal

VOLUME 15 : NUMBER 4 ☆ AUGUST 1959

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THE NATIONAL FEDERATION OF FINANCIAL ANALYSTS SOCIETIES

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TO: **YOU**

FROM: **GENERAL TELEPHONE & ELECTRONICS**

RE: **TOMORROW'S COMMUNICATIONS NEEDS**

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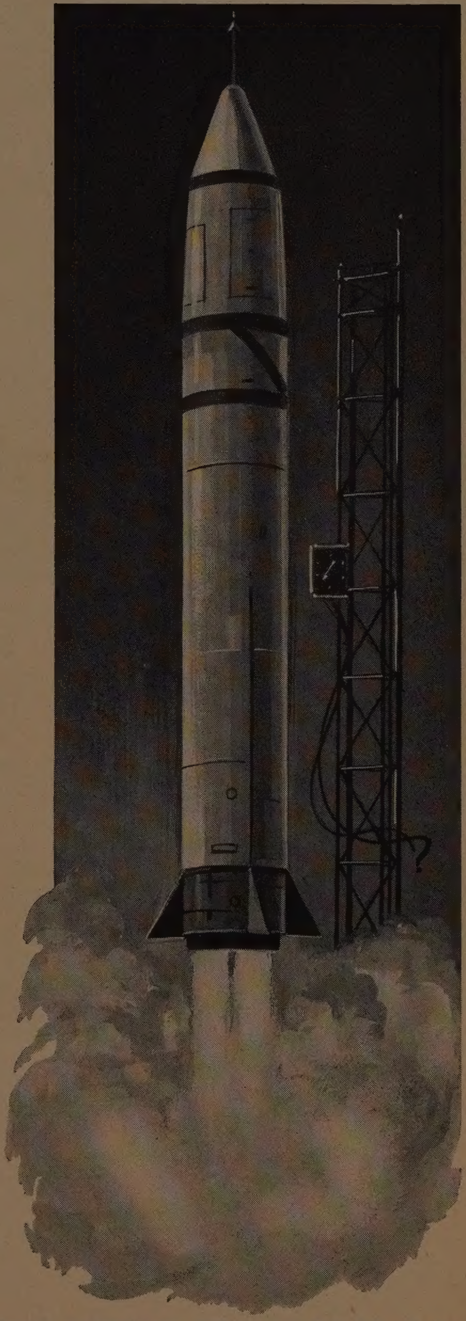

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VOLUME 15 AUGUST 1959 NUMBER 4

Journal to Be Published Bi-Monthly

In an effort to cover all significant events at the Montreal Convention (our July issue), we neglected to mention the fact that the National Federation approved publication of *The Analysts Journal* on a bi-monthly basis as of 1960. January will be our first issue next year; and after that every-other-month.

This is definitely another milestone in the progress of your publication, now in its fifteenth year. We've already been referred to as the "Bible of 'Wall Street U.S.A.'" And now we'll have the opportunity to prove it six times a year. Moreover, we most sincerely hope that this endeavor, on the part of your editors, will become a joint operation with *all* of the twenty-two Analysts Societies—which comprise the National Federation—joining in.

It was most interesting to hear (during the recent Montreal Convention) some frank and open remarks about *The Journal.* And it was, we know, quite spontaneous. A few of us were talking one evening—the few, incidentally, representative across-the-country—and we asked for some honest reaction re the editorial quality of this publication; we got it! Aside from complimentary remarks, probably the outstanding criticism was the fact that *The Journal* prints so many articles by persons who are either a member of a large Analysts Society, or who are in the same general geographical area.

Our reply was simple and direct: despite the continued effort expended on the part of the editors to galvanize other Societies into editorial action, there remains too much lethargy. We're sorry for this, and we hope that with the eventual appointment, by each Society, of a liaison man between his Society and *The Journal,* that we can overcome the "let George do it" philosophy.

The country's brains—the continent's brains if you like—are *not* confined to any general geographical location. But, we are aware that some issues of this publication might tend to "prove" the contrary. However, this can be easily remedied by the cooperation of all participating Analysts Societies.

Finally, we'd like to state, with a view of keeping *The Journal* in the black, that our advertising representative tells us six issues a year brings greater continuity—and the advertisers like the idea. All this, of course, in addition to the fact that you members will have a six-times-a-year opportunity of presenting your views on an international (our foreign circulation is steadily increasing) "sounding board."

Hail, Moyer Kulp!

And all opinions to the contrary, this is *not* the latest battle-cry of any South American revolutionaries. Rather, it's a *profound tribute* to a *prominent* Philadelphia Analyst.

Within the past few weeks it was decided that *The Analysts Journal* should become a bi-monthly (see above editorial), and, after many years of debate, it has also been decided to establish an *Institute of Chartered Financial Analysts.*

Establishment of this *Institute* is the culmination of many years of work by many Analysts. And there is one man who has devoted so many hours over so many years that we think he should be singled out. A. Moyer Kulp, vice president, director and chairman of the Investment Committee of the Wellington Fund, has also been chairman of the National Federation's Professional Ethics and Standards Committee since 1954.

At the June Montreal Convention he was re-elected for another term—and we have an unofficial suspicion that, with the formal establishment of the *Institute of Chartered Financial Analysts,* its first chairman will be the man who has devoted so many years to make professional accreditation an accomplished fact.

THE ANALYSTS JOURNAL is published five times a year, in February, May, July, August, and November, by The National Federation of Financial Analysts Societies, a nonprofit voluntary association devoted to the interests of those engaged in investment management and, more specifically, in the profession of security analysis. Publication office: 82 Beaver Street, New York 5, N. Y. Second class postage paid at New York, N. Y. Indexed in the Business Periodicals Index.

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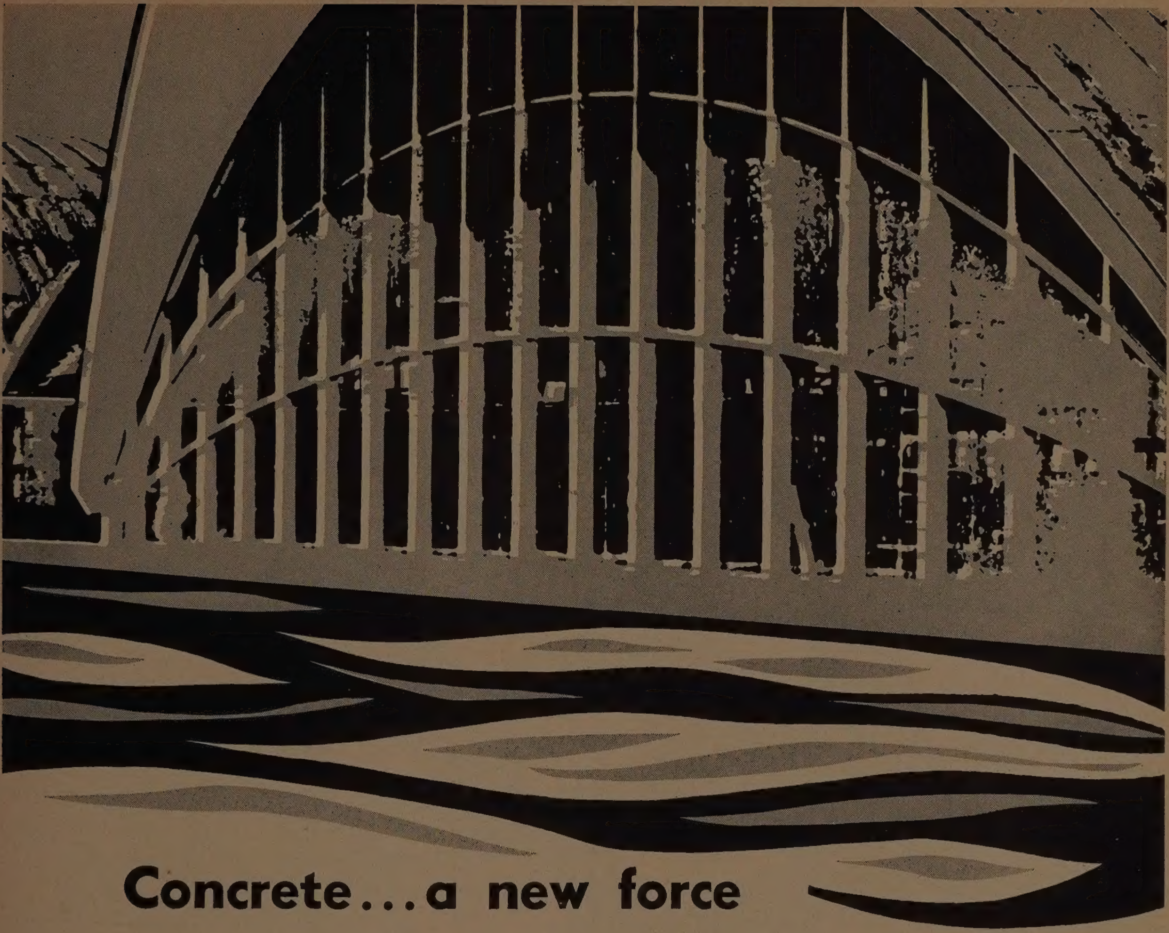

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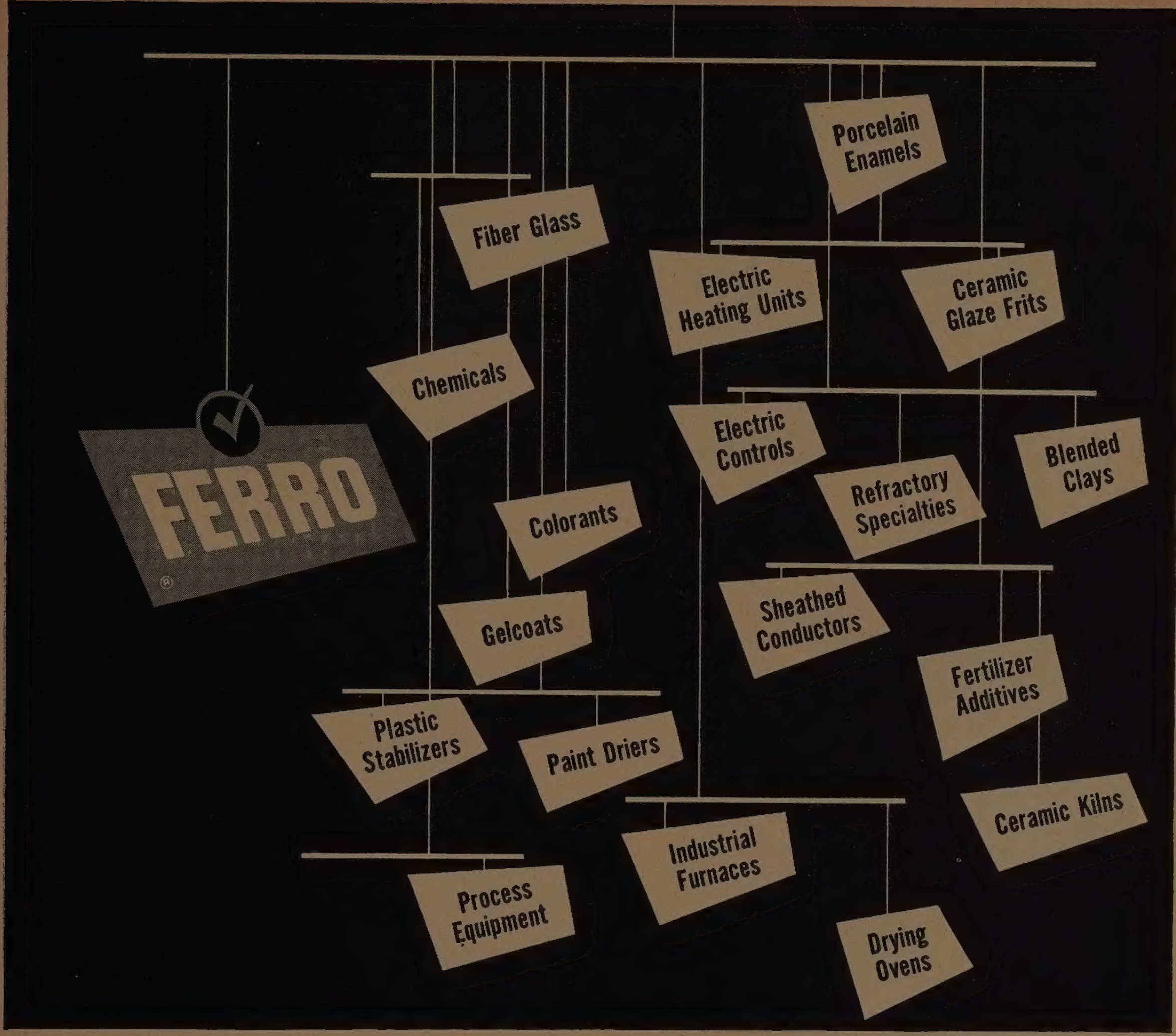

MID YEAR COMPARATIVE CONSOLIDATED SALES AND NET INCOME

	Six Months Ended June 30 1959	1958
Consolidated Sales	$31,615,000	$26,969,000
Consolidated Income Before Taxes	$3,598,000	$1,580,000
Consolidated Income Taxes	1,809,000	797,000
Consolidated Net Income	$1,789,000	$783,000
Earnings Per Share on 720,289 Shares	$2.48	$1.09

(Outstanding June 30, 1959)

(The foregoing figures are subject to examination by our independent Certified Public Accountants.)

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AN INTERESTING LETTER SAID...

"Why in Heaven Don't You Speak Out on Inflation?"

I have received a number of letters from men and women who are concerned about inflation. One A. T. & T. share owner asked, "Why in heaven don't you speak out on this subject?"

The letter went on to say, "If you would alert the 1,625,000 share owners and 700,000 employees to the facts about inflation, they would help spread the news."

I warmly agree that it is essential to alert more people to the dangers of inflation and we in the Bell System are speaking up and speaking out at every opportunity.

In recent articles and bulletins to employees, the Bell System Companies have discussed the threat which inflation poses to the purchasing power of the dollar and to savings, insurance, and pensions.

At the annual meeting of A. T. & T. share owners I pointed out that inflation has been a tough problem in the telephone business. But we have not just talked about the problem—we have developed more efficient equipment and introduced many economies of operation. It is worth noting that the price of telephone service has generally gone up less since World War II than most other things.

But we know that the forces of inflation are far too widespread and powerful for any one individual or business to stem them singlehanded.

This brings me to the question that I believe so many are asking. "How can I help?" In these ways, it seems to me:

By giving spoken and written support to those who are working for a strong, sound, and stable dollar.

By opposing unreasonable demands, excessive spending, and schemes that add fuel to the inflationary fire.

Your friends and associates, and especially your representatives in Congress, are entitled to your constructive views.

For our part, we will continue to fight inflation by pushing research hard and effecting economies in our business. And by speaking out against this threat to the people and the country.

FR Kappel

FREDERICK R. KAPPEL, PRESIDENT
AMERICAN TELEPHONE AND TELEGRAPH COMPANY, NEW YORK, N. Y.

THE MONEY MARKET

by George B. Kneass

IT IS USUALLY unfortunate to try to define a variable. The money market must be described as a market with a central location—at the present time New York City—where temporary surplus funds of many types of organizations go to find income-producing employment without sacrifice of liquidity, and where short term needs are satisfied at interest rates that are advantageous to the borrower. It has been and probably will be for some time the place where end adjustments between the supply and demand of current funds are made for the country as a whole after the usual regional clearings.

The money market borrower, or lender, frequently has certain habitual sources from which he normally obtains all or a part of his requirements on either the plus or minus side; but he naturally feels no obligation to approach any particular lender or group of lenders for this type of financing. He seeks the area where he at the moment can obtain the most favorable terms. It therefore is and should be an impersonal market with lender-customer relationships prevailing to a rather limited extent.

The number and respective importance of the money market media, used from time to time, change from borderline cases to substantial influences in their adjustment to the new and popular demands and needs of this growing and dynamic economy.

The changing emphasis on the importance of money market vehicles has been caused by varying trends in business habits or practices, and the shrinking or rising volume sometimes caused by the entrance of the corporate treasurer into areas once considered to be the proprietary or reserved and established realm of the bankers.

The prominence in the 1920's of the "Bankers' Bills" or acceptances and prime commercial paper in the short term market and call loans secured by stock exchange collateral in the true money market, have been displaced by other media. The development of the Federal Fund market as a convenience in adjusting daily reserves "outside" the Federal has become a gradually more popular and logical method of employing excess funds at satisfactory rates, without cumbersome bookkeeping detail such as encountered by the repurchase agreement transaction.

I shall confine my comments to this short term area—the readily convertible holdings of securities, deposits or semi-cash reserves, or close money substitutes. This would exclude the normal deposit accounts of corporations and individuals and the activities of individual saver and investor.

The banking system is, of course, the core of the whole business of clearance and settlement. The adjustments of their primary and secondary reserve positions continue to be the dominant activity unless the Federal Reserve Open Market Committee is operating aggressively. The latter operates in accordance with the policies adopted from time to time by the Federal Reserve Board in supporting and promoting the economic health of the nation.

The elements most popular today as money market instruments might be catalogued as follows.

A. Federal Reserve Funds
B. Clearing House Funds
C. U. S. Treasury bills and other early maturities of Government obligations
D. Borrowings at the Federal Reserve Banks
E. Federal Reserve repurchase agreements with Government security dealers
F. Dealer loans and repurchase agreements with bank and non-bank investors
G. Short term marketable issues of Government agencies—Federal Intermediate Credit Banks, etc.
H. Bankers acceptances and commercial paper
I. Public Housing notes
J. Loans between banks

I do not need to dwell on the banks' operations in clearing checks directly or through the Federal Reserve System, except to say that the latter credits the reserve account of the sending bank on a schedule for the collection process in accordance with mail times, two days being the maximum. Frequently this process takes longer than the time of credit, and the unchanged reserve for this extra day or so then becomes float. This represents a fluctuating supply of Federal Reserve credit and amounts at times to over a billion dollars in usable funds—particularly if bad weather slows rail and air traffic. The central bank endeavors to estimate these changes as one part of its activities in gauging and influencing the impact on reserve positions.

The purchase or sale of Federal Reserve Funds,

George B. Kneass, senior vice president in charge of investments, The Philadelphia National Bank, is a former assistant to the Secretary of the United States Treasury. For several years Mr. Kneass served on the Board of Governors of the Investment Bankers Association of America, and currently is a member of the Governmental Securities Committee of the I.B.A.A.

which began as a convenience transaction between banks in the same city, has now developed into a nation-wide method of adjusting surplus reserves, the daily totals also frequently exceeding a billion dollars. The dealings represent one day unsecured loans at a negotiated rate—usually between the banks interested, but New York money brokers and banks in the larger cities often act as go-betweens for correspondents without direct charge for the service. Dealings intra city are effected by drafts on the local Federal Reserve Bank and clearing house check, while the more distant ones are by wire transfer and telegraphic confirmation. The "fund" rate may vary from hour to hour, and is one of the most sensitive indicators of the prevailing condition of the money market. The smaller country banks—whose aggregate excess reserves frequently represent a large part of the system's total—would find it cumbersome to negotiate and transfer the relatively small amounts involved, and the expense would hardly make the modest income worth the trouble.

Consideration of Federal Funds

The ebb and flow of the money supply is reflected in various seasonalities. Economic trends also have their impact on amounts available. There may be a shrinkage of the supply of Federal Funds in periods of tight money. It is probable that the larger banks, which participate most actively in the Federal Funds market, are less likely to have excess reserves. Also, being more continuously in need of funds to meet loan demands of their customers, they may be less eager to take a chance on their position when a miscalculation would mean going to the discount window

Clearing House Funds are not "good money" until the following business day, and therefore are not the "quick reserve" that lends the attractiveness to Federal Funds. Practically all clearances in the stock, and corporate and municipal bond markets are settled by this means. They do not enter in this discussion of the money market.

The continuing increase in the outstandings of Treasury bills in turn reflects their growing importance in the short term market. They have become the basic instrument of liquidity for the corporate investor and in addition to the banking system are widely held by foreign governments and central banks, and an increasing number of "other" investors. Their fluctuations provide another sensitive indicator of money rates.

The Open Market Committee of the Federal Reserve Board use these almost exclusively in their "control" activities—the thirty billion outstanding provide ample opportunity to supply or restrict reserves as their policy dictates.

Secured loans between banks other than the one day Federal Funds transactions are subject to wide fluctuation and usually become prominent only in period of tight money. They are normally arrangements between the country banks and their city correspondents and are not money market factors.

The "discount window" at the Federal Reserve Banks is considered to be open as a privilege to the member banks rather than a right. Nevertheless, at times of monetary pressures the central banks show great understanding of the persistent demands on the commercial banks for credit to support a sturdy growth in the economy. When Federal Funds are not available reserve adjustments, particularly "last minute" ones, are made at the discount window. Government securities are used as collateral and it is rare indeed when the once popular "eligible paper" is tendered for rediscount.

The Federals also supply reserves to the money market by creating repurchase agreements with Government security dealers for brief periods—these are normally at the discount rate. The testing of the demand for this type of credit is another sensitive measure of pressures upon the money market. These are only made at the Federal Reserve's initiative after the Government security dealers have shown a real residual need. Such action in meeting some part or all of this need must conform to and contribute to the carrying out of Federal Reserve policy. These are secured by Treasury securities due within fifteen months at some nominal margin for protection and the agreements are made for a period of not longer than fifteen days. The repurchase mechanism may also be used in connection with bankers' acceptances. The volume however is insignificant.

Dealer loans secured of course by Government securities or stock exchange collateral have not the significance they had in the old "call money" days of the twenties, when participations were widespread throughout the banking system and totals reached eight billion. Nevertheless, the rate published about mid-morning by the New York banks and subject to change during the day is an indicator of money market conditions, reflecting also a particular bank's position and desire for new commitments.

Possibility of Lower Rates

There is growing competition for these dealer loans by banks in other large cities and it may be that a government security dealer will test the outside markets (usually at lower rates) before deciding to obtain part or all of these requirements in New York City.

Another and increasingly important source of credit for the government dealer is the corporate treasurer. Arrangements for repurchase agreements of short or medium duration may at times provide the dealer with the wherewithal to conduct most of his business. These agreements are often tailored to meet the cash requirements of the corporation, such as tax and dividend dates and other settlements of consequence. If the borrower is attracted to go outside his normal credit channels, it must be achieved through lower rates. The New York banks are therefore frequently underbid on loans and excess funds from other cities find employment at rewarding yields over those available in the bill or Federal Fund market.

Dealers in government securities have found it increasingly useful to broaden their relationship with their customers by means of acquainting them with the features and advantages of the repurchase agreement as a use for their funds. This of course may mitigate to some degree against their trading activity in governments with these customers, but it has enabled the dealer to carry securities at little or no margin and at a saving in interest on this borrowing. In addition he ties up less capital than in making regular collateral loans.

The securities are normally lodged at some New York City bank where substitutions of collateral can be conveniently arranged. These transactions, while consummated in New York City to a great degree, may represent reserve balances from many parts of the country and therefore aid in distributing the pressure on bank reserves which might well have been concentrated in New York City. This increasingly broadened relationship fostered also by the close ties of the large city bank with its correspondents has contributed to the binding together of the financial mechanisms. It has therefore permitted the fringe areas to become more sensitive to the changes in the supply of Federal Funds brought about by the actions of the Federal Reserve System.

'Convenience Investor'—New Term

These new vistas which the money market is now enjoying, plus the changing emphasis on some of the instruments employed, are sometimes taken for granted in an unrealistic way. The corporate treasurer, for instance, employing as great a part of his cash at interest as is feasible, is using the Treasury bill and repurchase agreement facilities to a substantial degree. He, or his like, has been named by one of my friends the "convenience investor," suggesting that he only operates in the market at times of surplus funds and does not accept any obligational responsibility to the market place or to the smoothing of what might be pressure situations. It is therefore necessary for certain larger banks—and the emphasis again is on New York City and Chicago—to play the part of anchor man in supplying credit to the government security dealer and others in times of a seasonal pinch.

Obvious periods of strain are in the areas of tax dates and the year-end, when corporate holders of short securities or repurchase agreements allow these to mature or be liquidated and the slack must be taken up by some responsible institutions in the banking system. These fellows who for weeks have been underbid by other banks and by corporate lenders for dealer loans suddenly find themselves highly popular. Even the finance companies who have sold their paper to corporations to mature around tax dates now become heavy borrowers and users of the credit lines in these banks.

In lesser degree, the shorter term paper of the Federal agencies and also the once popular acceptance and commercial paper markets play a part in absorbing short term monies.

There is another type of credit extension which may or may not reach sizable totals and that is the so-called reverse repurchase agreement. This is a situation where the corporate lender may supply money to a banking institution secured by collateral of usually short Government securities at a rate somewhat below the discount rate. The term of these may be a few days to a few months. In effect this is a time deposit of sorts, but usually of shorter term than permitted on time accounts by banking regulations. There is some doubt philosophically how constructive a practice it is.

The repurchase agreement itself was also used instead of an inter-city Federal Fund transaction until general acceptance of the unsecured loan became assured. However, the repurchase agreement took on a new importance and emphasis when the non-bank government security dealers realized the money market banks were not making money readily available except at costly prices compared to the coupon rates on the Treasury securities used. It was therefore a normal consequence that these dealers sought other areas in order to broaden their access to borrowed funds. To attract the new and different type of lender, variations soon developed in the form and terms of these contracts to facilitate their adaptation to the timing and other requirements of corporate investors and others, including the now educated and willing banks of importance throughout the United States.

Disturbing Abuses Evident

The repurchase agreements presumably give the investor protection from market risks and price differentials in a form that adds the dealer's credit to the security of the underlying collateral. Nevertheless, disturbing abuses became evident a year ago when the less well informed investor and speculator joined in a market consequence that was disruptive to the entire atmosphere of the government securities market.

In searching for "whipping boys," the repurchase agreement has been revealed as one of the media whereby credit to speculators in government securities was extended to an amount now realized to be excessive. The change in policy of the Federal Reserve Board, in November 1957, and the actions supporting their new attitude, resulted in an easing money rate trend and a sympathetic rise in the prices of Treasury securities. The new atmosphere provided opportunities for the sale of new bonds at less and less generous terms. This development attracted an increasing number of the speculative type of investors. Through the facilities of money brokers and some stock exchange houses maturing Treasury obligations exchangeable for a new issue were financed by means of the repurchase agreement without the full and complete credit knowledge which dominates and brings stature to this type of transaction. The June refunding in 1958 became the climax of this new and importunate trend. The new issue of bonds was in such heavy supply and lodged in such weak hands that the price decline which was a natural consequence caused liquidation of the thinly margined repurchase agreements which had originally been secured by a security maturing in a few weeks or days.

The market became further depressed by a combination of adverse international and domestic developments and in the next 60 days became at times demoralized to a degree that prices of Treasury securities reflected a disorderly or confused situation.

The "whipping boy" (if such he was) is unlikely ever to experience such abuse in our future. It is now realized by the authorities that lack of information and fallible judgments were the prevailing influence in these developments.

The Federal Reserve Board and New York Stock Exchange governors are deeply conscious of the need for greater exchange of information and a general tightening up in credit standards and capital requirements. A new system of confidential reports (possibly available to the public at six months intervals) undoubtedly will be a part of a developing system designed to prevent a recurrence of such an unsound situation.

This system of ours relies on the free movement of funds in and out of the money markets with the interplay of rates and short term security prices reflecting the current condition. This has been the sound and constructive development since the Treasury-Federal Reserve accord gradually eliminated the rigidities which had brought artificiality into our money markets.

ANNUAL
REPORT
HIGHLIGHTS

COSDEN

for fiscal year ended April 30	1959	1958
NET INCOME		
Before Income Taxes	$ 7,726,907	$ 8,601,272
After Income Taxes	4,516,907	5,193,272
Per Share of stock	$1.64	$2.01
SHAREHOLDERS		
Shares outstanding—year average	2,748,645	2,584,005
Number of shareholders	11,000	8,100
Year-end equity—book net worth	$40,945,796	$35,160,944
Cash dividends paid	$ 2,756,148	$ 2,583,995
Per share of stock	$1.00	$1.00
Cash flow	$10,986,972	$ 9,998,365
Per share of stock	$4.00	$3.87
Stock distributions	(See note)	3%
ANNUAL GROWTH		
Additions to properties	$ 8,493,480	$13,313,713
Crude Oil processed—barrels	14,195,949	15,362,292
Crude Oil produced—barrels	2,022,728	1,869,615
Natural Gas Sales—MCF	2,725,296	2,346,792
Payrolls	$ 6,495,848	$ 6,138,259

Note: A 3% stock dividend with respect to fiscal year ended April 30, 1959 was declared May 20, payable June 30, to stockholders of record June 10, 1959.

If you would like to receive a copy of our Annual Report and future Quarterly Reports, please write

COSDEN PETROLEUM CORPORATION

603 Petroleum Building
Big Spring, Texas

SOUTHERN NATURAL GAS COMPANY

Birmingham, Alabama

Common Stock Dividend No. 82

A regular quarterly dividend of 50 cents per share has been declared on the Common Stock of Southern Natural Gas Company, payable September 14, 1959 to stockholders of record at the close of business on August 31, 1959.

H. D. McHENRY,
Executive Vice President

Dated: July 25, 1959.

Public Service Electric and Gas Company

NEWARK, N. J.

QUARTERLY DIVIDENDS

The Board of Directors has declared the following dividends for the quarter ending September 30, 1959:

Class of Stock	Dividend Per Share
Cumulative Preferred	
4.08% Series	$1.02
4.18% Series	1.045
4.30% Series	1.075
5.05% Series	1.2625
$1.40 Dividend Preference Common	.35
Common	.45

All dividends are payable on or before September 30, 1959 to stockholders of record August 28, 1959.

J. IRVING KIBBE
Secretary

NJ PUBLIC SERVICE
CROSSROADS OF THE EAST

Newport News Shipbuilding and Dry Dock Company

Profit and Loss Information for the six fiscal months ended June 29, 1959 and June 23, 1958

	Six Fiscal Months Ended	
	June 29, 1959	June 23, 1958
Gross income from shipbuilding, ship conversions and repairs, hydraulic turbines and other work	$98,645,765	$78,210,289
Operating profit	$11,630,690	$ 4,000,625
Deduct—Provision for taxes on income	6,300,000	1,875,000
Net profit before allowances	$ 5,330,690	$ 2,125,625
Deduct—Increase in allowances on long-term contracts	600,000	—
Net profit—Amount	$ 4,730,690	$ 2,125,625
Net profit—Per share outstanding at the close of the period . .	$2.93	$1.33

The above information is based in large part upon estimates and is subject to year-end audit, adjustments and charges and is not necessarily indicative of the full year's results. The underlying contract estimates as at June 23, 1958 have since been revised, and those as at June 29, 1959 will be revised hereafter.

The Company's business consists largely of long-term ship construction, repair and conversion and hydraulic turbine and other construction contracts of large unit value, the performance of which may extend over periods as long as several years. A substantial part of the Company's business is with departments and agencies of the United States and the contracts therefor are subject to profit limitations and renegotiation to the extent that existing law and the contracts may provide and, in some cases, to termination at the convenience of the Government.

The Company records profits on its long-term shipbuilding contracts through estimates on the percentage-of-completion basis, and on its other long-term contracts as billings are made thereon. The profits so estimated and recorded are reduced by such allowances as may be considered advisable, taking into account the stage of completion of each contract, possible increases in costs not included in the estimates, guarantee liabilities, unsettled contract adjustments and other factors. The amounts reserved as allowances reflect the reductions in Federal and state income taxes which would result if the matters covered by the allowances materialize. To the extent that the matters for which the allowances were provided do not materialize, the allowances are included in income. If such matters materialize in amounts exceeding the allowances provided therefor, the excess will reduce income in the year in which such matters materialize. Federal and state income taxes must be paid for each year upon the profits as estimated and recorded without consideration of the allowances. Such allowances aggregated $4,175,000 at June 29, 1959, $3,575,000 at December 31, 1958 and $3,125,000 at June 23, 1958 and December 31, 1957.

Income from other contracts and orders is estimated and recorded as billings are made under the contracts or recorded upon completion of each contract.

Quarterly Statement of Billings, Estimated Unbilled Balance of Major Contracts and Number of Employees

	Six Fiscal Months Ended	
	June 29, 1959	June 23, 1958
Billings during the period from shipbuilding, ship conversions and repairs, hydraulic turbines and other work	$103,562,571	$83,110,167
Estimated balance of major contracts unbilled at the close of the period	$259,314,870	$380,627,622
Equivalent number of employees, on a 40-hour basis, working during the last week of the period	13,155	11,470

Since June 29, 1959 the Company has received a contract for the construction of two nuclear-powered Polaris missile submarines at prices aggregating about $64,000,000.

The Company reports income from long-term shipbuilding contracts on the percentage-of-completion basis; such income for any period will therefore vary from the billings on the contracts.

By Order of the Board of Directors
R. I. FLETCHER, *Financial Vice President*

July 22, 1959

GOODYEAR DIVERSIFICATION AT WORK

Destination: Orbital Space Station X-68

When will *men* fly to outer space? In 1963? Perhaps even sooner? Prominent in the preparation for space flight is Goodyear Aircraft, with its projected program for orbital space stations to serve manned flights.

The study of space stations is one task in the diversified research activities carried on by scientists at Goodyear Aircraft Corporation. And research is only one aspect of AIRCRAFT's work. It also operates one of the largest missile booster case fabricating plants under one roof in the United States. It is system manager of SUBROC, underwater-to-air-to-underwater anti-submarine missile—it is a major producer of lighter-than-air craft—of Pinpoint* guidance and other electronic guidance systems as well as a major producer of key components of the Mace, Nike Ajax and Nike Hercules missiles.

AIRCRAFT is only one of the vast network of Goodyear facilities that make and sell hundreds of different products.

*T.M. Goodyear Aircraft Corp., Akron, Ohio

GOODYEAR

THE GREATEST NAME IN RUBBER

AIRCRAFT • AVIATION PRODUCTS • CHEMICALS • FILMS • FLOORING • FOAM PRODUCTS
INDUSTRIAL RUBBER GOODS • METAL PRODUCTS • SHOE PRODUCTS • TIRES

A Reappraisal of the Steel Industry

by Edmund A. Mennis

IN THE PERIOD SINCE World War II, the steel industry has undergone a major reappraisal by discerning investors. As earlier articles in *The Analysts Journal* and elsewhere have pointed out: (1) earnings have advanced and exhibited less of the cyclical fluctuations characteristic of the prewar period; (2) dividends have moved upward and regular dividend rates established and maintained even in periods of adversity; and (3) gradual recognition of these facts has resulted in increasing the level of price-earnings ratios, so that steel equities have been more profitable as capital gains vehicles than many of the glamorous growth stocks.

This improvement in steel earnings and dividends has not been brought about by any spectacular growth in demand for steel products. It is the result, rather, of internal cost control and efficiencies in operations of the steel companies and, more importantly, the establishment of a pricing structure in steel products that has more than compensated for increased costs and has not been subject to the same erratic fluctuations as steel demand.

The purpose of this article is to reappraise the industry in order to see if the factors that have made the industry so profitable an investment in the past decade will continue to operate in the future. This requires an examination of the organization and market structure of the industry in its present world-wide context.

ORGANIZATION OF THE STEEL INDUSTRY

The steel industry is essentially a high capital cost, highly integrated industry from raw material through finished steel products. The technical advantages of integration have been proved by experience, and the economies of size are significant. It has been estimated that the lower limit of cost of a fully integrated one-million ton ingot plant is $265 million, and the most effective plant scale is probably larger. The most effective scale of entry in the industry is said to involve several plants and capital of $2 to $5 billion, in order to take advantage of multiplant economies and regional locations. The history of the steel industry has been one of forward integration of the major producers and the concentration of production among a few large companies. About 76% of the industry ingot capacity and almost 80% of the blast furnace capacity are concentrated in the eight largest companies in the industry. Moreover, the ninth largest company in terms of ingot capacity, Kaiser Steel, has 55% less than Armco, the eighth ranking company in capacity.

World Steel Industry

With the reestablishment of world trade and the recovery to a full competitive status of the steel industry abroad, any evaluation of the steel industry in United States must take into account the foreign steel industry. In *Table I,* steel ingot output in 1957 for the United States and for the rest of the world is indicated. Although the United States accounts for more than one-third of total steel output, substantial steel capacity exists in Western Europe and in the total Free World.

Table I

Steel Ingot Output—1957

(Millions of Tons)

United States	112.7	35.1%
Great Britain	24.3	7.6
Japan	13.9	4.3
E.C.S.C. Countries	65.9	20.5
France	(15.5)	(4.8)
West Germany	(27.0)	(8.4)
Other	(23.4)	(7.3)
Total Free World	241.6	75.2
Total Iron Curtain	79.5	24.8
World Total	321.1	100.0%

Source: "Steel," January 5, 1959, pp. 5-6.

The free world steel industry outside the United States is plagued by raw material problems. In Japan, for example, the postwar growth has been rapid. The industry, nevertheless, is dependent on imports for ore, pig iron, coke and scrap. The European industry is dependent, and will be more so in the future, on imports of high grade ore, coking coal and scrap. The major advantage that foreign steel producers have relative to the United States is substantially lower labor rates, as shown in *Table II.* An additional advantage that the European-Japanese steel industry possesses is the major reconstruction of their steel plants after World War II, so that now they are fully competitive in terms of quality with those in the United States.

There are some basic differences in the method of making steel in the European nations versus the United States. The open hearth process is much less important, and the Bessemer process accounts for a much larger percentage of total output. This is essentially the result of the type of ore available and scrap shortages in Europe; it may be some years before the importance of Bessemer furnaces abroad is reduced. However, use of the basic oxygen process has increased abroad, with the

(*Continued on page* 18)

Edmund A. Mennis is director of research and an economist for the Wellington Management Fund, as well as being a member of the investment committees advising both the Wellington Fund and the Wellington Equity Fund. As an Analyst, he has specialized in the steel and automotive industries for many years.

This is a NEW Semiconductor Solid Circuit! It performs the same function as a conventional electronic circuit constructed of eight resistors, two capacitors, and two transistors . . . makes possible extreme size and weight reductions in systems for computers, missiles and satellites. Another product of TI-sponsored research and development.

TEXAS INSTRUMENTS
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ACTUAL SIZE

Just as the transistor already has "shrunk" electronic apparatus in commercial, industrial and military applications — as typified in consumer goods by tiny transistorized radios and TV sets — new Semiconductor Solid Circuits will further shrink electronics, making it possible to build more complex systems into electronic-packed computers, missiles and satellites.

Born from a TI-sponsored research and development program, the new construction technique makes it possible to compact over 30 million components in a cubic foot! New Semiconductor Solid Circuits require up to 75% fewer leads and connections than conventional electronic circuits, greatly increasing systems reliability. In the manufacture of the circuits, TI uses such semiconductor manufacturing techniques as controlled masking, etching and diffusion. This newest TI development contains diode and transistor elements, as well as elements of resistance and capacitance, to provide a complete circuit function normally requiring up to 12 components, *all in one integral piece of semiconductor material!*

TI Semiconductor Solid Circuits perform such basic electronic functions as amplification, oscillation, counting, and switching. The many possible fields of application include communications, missiles, satellites, radar, sonar, business machines, computers, and industrial automation where electronic systems are contained within the machines. Hardly the size of a paper match head, the TI solid circuit can also be used in medical research, with medical instruments placed within the human body as an aid in diagnosis.

It's understandable that such revolutionary technological advances come from a leader in the research, development and manufacture of semiconductor products. The new Semiconductor Solid Circuit can be added to a long list of TI major "firsts" . . . in semiconductor products and transistorized equipment and systems; in geophysical data gathering and processing; in military electronics, and in precision instrumentation. Technical innovation is typical of Texas Instruments, where such significant developments result from TI's emphasis on creative ability and freedom of professional expression.

Another reason why you should

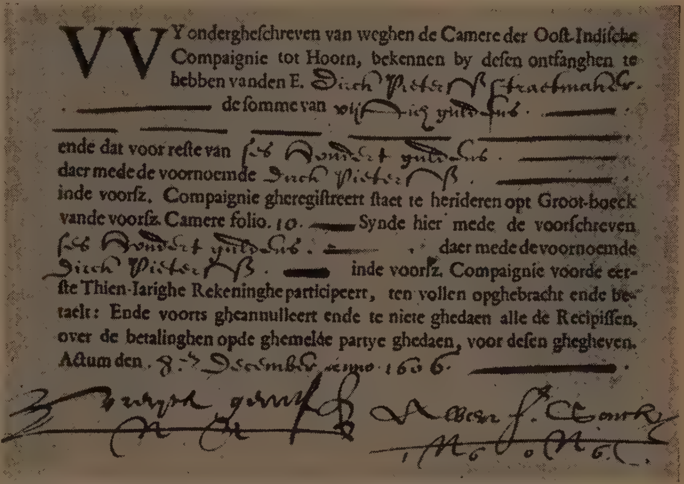
keep an eye on T/I

World's First Stock Certificate

The photostats and translations shown here (front and back), of what is believed to be the first stock shares ever issued, were made available to *The Analysts Journal* by P. F. J. de Kok, chairman of Vereeniging Voor Den Effectenhandel — The Amsterdam Stock Exchange.

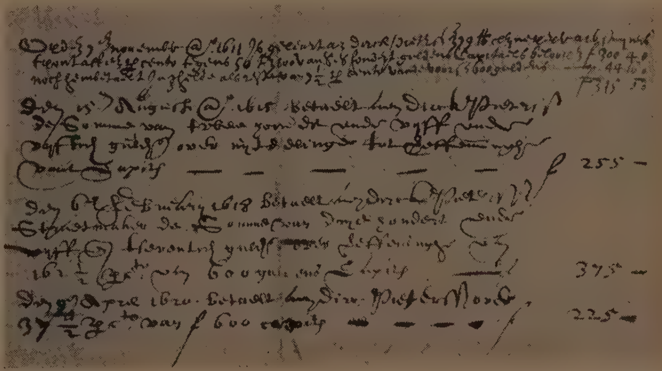
These shares were issued by the Dutch East-India Co., a corporation formed in 1602 with a fleet of 64 merchant ships. Trading was in the East Indian Archipelago. And in order to raise the necessary funds to buy ships, docks and warehouses, the company was granted character of corporation—the first limited liability company—that issued registered stock called "actien."

A lively trade in "actien" soon developed in one of the old streets of Amsterdam under the penthouses of shops. As Amsterdam was the first town where stock-trading took place, this town (now a flourishing city) can be called the cradle of the present-day stock market.



VVY ondergheſchreven van weghen de Camere der Ooſt-Indiſche Compaignie tot Hoorn, bekennen by deſen ontfanghen te hebben vanden E. Dirck Pietersz Straetmaker. de ſomme van vijftich gulden. ende dat voor reſte van ses hondert gulden. daer mede de voornoemde Dirck Pietersz. inde voorſz. Compaignie gheregiſtreert ſtaet te herideren opt Groot-boeck vande voorſz. Camere folio. 10. Synde hier mede de voorſchreven ses hondert gulden. daer mede de voornoemde Dirck Pietersz. inde voorſz. Compaignie voorde eerſte Thien-Iarighe Rekeninghe participeert, ten vollen opghebracht ende betaelt: Ende voorts gheannulleert ende te niete ghedaen alle de Recipiſſen, over de betalinghen opde ghemelde partye ghedaen, voor deſen ghegheven. Actum den. 8en December anno 1606.

We the undersigned on behalf of the "Camere der Oost-Indische Compaignie" at Hoorn, acknowledge to have received from Mr. Dirck Pietersz Straetmaker the amount of fifty guilders being the remainder of six hundred guilders for which amount forementioned Dirck Pietersz has been registered by the "Compaignie" to inherit from the Great Book of the "Camere" folio 10. Being brought in and paid in full the amount of six hundred guilders for which the said Dirck Pietersz participates in the First Ten Years Account of the "Compaignie". Being cancelled and annulled all receipts on payments for the above mentioned participation. Actum December 8, 1606. Vreryck Gerritsz Albert Soorck, 1606



On November 7, anno 1611 were delivered to Dirck Pietersz 379 pounds of pepper for 16 pennies a pound or in percents 50 per hundred of the amount of six hundred guilders—fl. 300,4,0—and paid in cash an interest of 7½ percent of 600 guilders—44,16,0—total fl. 345,0,0. On August 15, anno 1615 paid to Dirck Pietersz the amount of two hundred and fifty-five guilders as repayment for amortization. On February 6, 1618 paid to Dirck Pietersz Straetmaker the amount of three hundred and seventy-five guilders as liquidation of 62½ percent of 600 guilders. On April 9, 1620 paid to Dirck Pietersz re 37½ percent of 600 guilders—fl. 225.

STEEL INDUSTRY—(*continued from page* 15)

accompanying advantage of lesser dependence on steel scrap.

Because of the nature of European demand, steel shipments by type in Europe are somewhat different from those in the United States. Heavy and light sections, shapes and bars, represent almost half of steel shipments compared with less than a third in this country. Tin plate is less than 3% of total shipments, compared with almost 8% in this country. Although sheet and strip production in total are not too far apart, cold rolled sheet in the United States represents almost 15% of total shipments, compared with less than 7% in Western Europe.

Steel Imports

Considerable attention has been paid to the increase in steel imports in the United States, particularly in 1958. Last year, in spite of a sharp drop in steel demand in this country and a sharp drop in exports as well, imports were the second highest in the postwar years. Thus far in 1959, imports have exceeded exports on a tonnage basis. The pattern of exports and imports for 1945-58 is shown in *Figure* 1. In 1957, United States' imports accounted for 1.2 million tons, which were only 1.4% of total steel shipments in this country. In 1958, however, this had increased to 2.1 million tons and, in view of the general decline in steel demand, represented 3½% of shipments.

Table II

1957 Comparative Hourly Earnings—Steel Industry United States and Foreign Countries

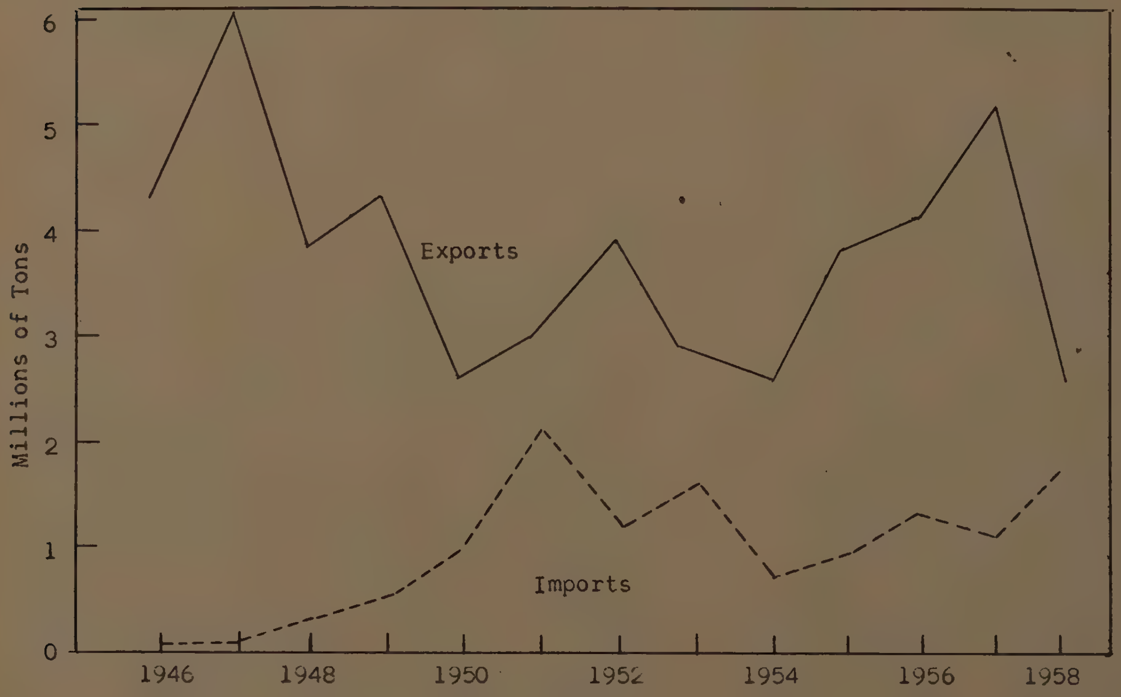
Country	1957 Average Hourly Earnings	% Below U.S.A.
West Germany	$ .678	76.8%
Luxembourg	.892	69.4
Belgium	.775	73.4
United Kingdom	.805	72.4
Japan	.406	86.1
Australia	.989	66.1
United States	2.917	

Source: "Steel Facts," No. 154, A.I.S.I., April 1959, page 1.

An examination of the type of steel imported indicates that imports are primarily in certain special categories rather than competitive with all types of domestic steel used. The major products imported are: concrete reinforcing bars (18% of this product available in the United States came from foreign nations in 1958); barbed wire (over 50%); nails (30%); plain wire (5%); and pipe and tubing (3%). These products are not all considered high-profit items, and, as yet, imports do not seem to be a serious competitive threat to major domestic steel producers. As a foreshadowing of future developments, however, they are significant.

Figure 1

Steel Imports and Exports 1946-1958 (Net Tons)



Source: AISI Forms Imports 1 and Exports 1

Nature of Steel Demand

Thus far, our attention has been directed to the supply side of the industry. An analysis of the demand side is necessary before pricing policies can be considered in detail.

Steel is a durable product, made to specification and order. There is little product differentiation among the products of different companies. Steel is widely used and relatively low in cost compared to substitutes. Its demand is essentially a derived one because it is sold not directly to consumers, but to thousands of manufacturers whose products, in turn, are sold to consumers.

About 80% of steel sales are made directly to industrial users and the rest to distributors or warehouses. There are said to be about 30,000 direct buying customers of steel companies, with manufacturers of machinery and equipment forming the largest group. Major consumers of steel are warehouses (which, in turn, supply the construction and oil industries, as well as thousands of small steel users), construction and contractors' products, automobile, container, rail and machinery industries.

Effect of Prices

The impact of price changes on the demand for steel has been the subject of some study. In economic terms, if a price increase of 1% in a product is found to be accompanied by a 1% decrease in sales, it is said that the elasticity of the product is unity, and the coefficient of elasticity of demand is 1.0. Products whose sales are more responsive to changes in prices have higher coefficients of elasticity, and those whose sales are less responsive have lower coefficients.

The most detailed study on the elasticity of demand was done by Dr. Theodore Yntema for the United States Steel Corporation as a part of the Temporary National Economic Committee hearings in 1940. Dr. Yntema concluded that the demand for steel is very inelastic, and the best estimate for the elasticity of demand for steel was indicated at approximately 0.3 or 0.4. In other words, a very large reduction in price would be necessary to effect a significant increase in sales.

Substitutes

Steel is a basic product that competes actively in many uses with other commodities, especially aluminum, glass, plastics and wood products. However, for the bulk of consumption, there seems little chance of substantial further substitution as long as relative cost relationships stay near their present levels. The major threat cited to steel has been the increased use of aluminum. On a price basis, however, aluminum is not competitive with carbon steel. In competition with alloy steel and stainless steel, aluminum substitution has increased more rapidly. However, spurred by this competition, steel research has not been backward, and many new steel products are available to meet the aluminum challenge.

Volatility of Demand

Inventory fluctuations in the steel industry have been characteristic of industries removed from the consumer. Unfortunately, neither government nor trade association data are available giving accurate information on inventory changes in the hands of steel consumers. The best published data available are those of the National Industrial Conference Board, which indicate quarterly changes in steel inventories in metal fabricating industries only. The data for the years 1953 through 1958 by quarters are plotted on *Figure* 2. The inventory fluctuations shown are only in the metal fabricating area. Significant inventory changes also occurred in site construction and oilfield and pipeline goods. Nevertheless, the chart clearly indicates substantial cyclical fluctuations in steel shipments. The dip in 1956 can be attributed to the steel strike, but the drops in 1953-54 and in 1957-58 are traditional inventory liquidations, which caused more violent changes in shipments than would have occurred if shipments were more in line with consumption.

Exports

Exports of steel are a relatively small part of total steel shipments. In 1957, exports were 5.2 million tons, or 6.5% of steel shipments. In 1958, they fell to 2.7 million tons, or 4.5% of shipments. The postwar trend of exports is shown in *Figure* 1. More than half of United States' exports go to Canada and South America, and the major items are pipe and tubing, tin mill products, and sheet and strip. The industry considers more significant the export of manufactured products made of steel than the export of fabricated steel itself, and the recent losses of manufactured steel products to foreign competition have been a cause of some concern.

Steel Prices

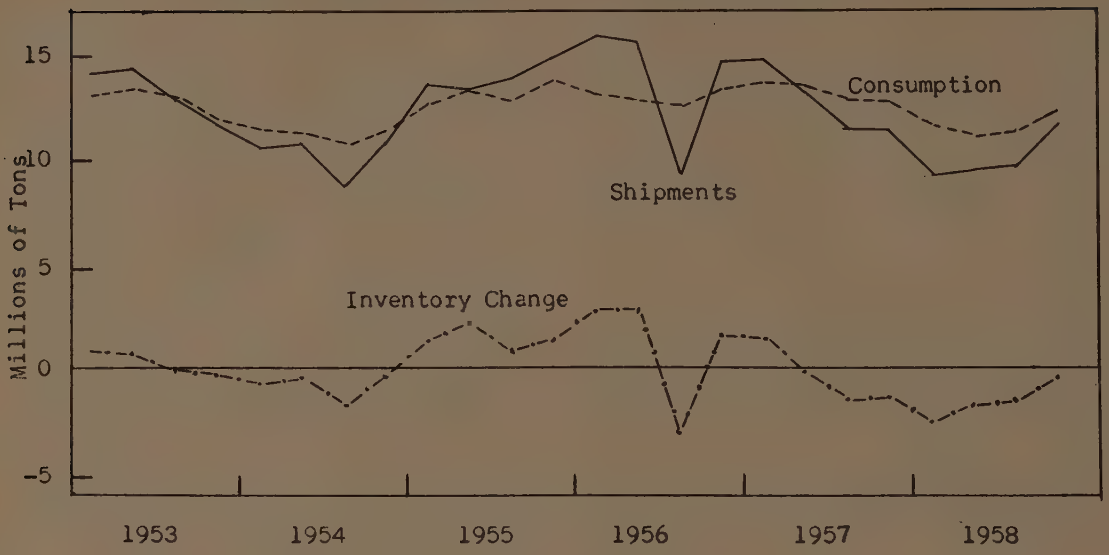
Having reviewed essential supply and demand factors for steel products, attention can now be turned to the pricing of steel products. Particular steel products in the United States are sold at one open price, the same to all customers. Extra charges are made for special treatment of base products, but these extras also tend to be uniform. Prices are quoted f.o.b. mill; but a company may determine the extent to which it will absorb freight to meet competition of a steel company more accessible to a consumer. There is very little, if any, difference in steel prices quoted to a particular customer by several steel companies.

There are some exceptions to the generalization on prices given above. One is a permanent premium on the price charged by companies for products in which they have a special reputation or by local companies selling in local markets protected by freight costs against competition from distant mills. This latter type of premium has been disappearing in recent years.

The second type of premium is temporary in nature and has occurred during periods of very strong or weak

Figure 2

Quarterly Changes in Steel Inventories—Metal Fabricating 1953-58



Source: National Industrial Conference Board

demand. Immediately after the war and during the Korean emergency, grey markets for many steel products existed as smaller producers took advantage of critical shortages. However, the major producers, almost without exception, held the price line. In view of the substantial expansion in capacity in the last few years, a return to grey market conditions seems unlikely. In past periods, there has been some evidence also of price concessions in periods of poor demand, but with the announcement of United States Steel in 1953 of its willingness to be competitive anywhere, price concessions have been practically nonexistent. Another exception to published steel prices has been import prices, which seem essentially opportunistic. When surplus capacity is available abroad and demand is high in this country, foreign steel prices are advanced to or above United States' levels. This situation prevailed in the second quarter of 1959 as the threat of a steel strike spurred steel demand.

Without becoming involved in the controversy of whether "price leadership" exists in the steel industry, it can safely be said that the pricing policies of United States Steel have a very strong influence on steel industry price policies. This influence of United States Steel can be accounted for by three factors. In the first place, United States Steel has a wide diversification of product, so that it can compete in every segment of the steel industry. Secondly, United States Steel has the widest geographical diversification of any steel company, so that it can compete in all steel markets. Thirdly, in recent years, United States Steel has been the most profitable of the steel companies. The ability of another company to engage in a successful price war with United States Steel is questionable, and the corporation has indicated its willingness to engage in such a war if necessary.

The postwar price of steel has trended upward, regardless of the business climate. As mentioned above, in some periods, especially 1947-48 and 1950-51, prices were deliberately held down below that which could have been charged in a fully competitive market. On the other hand, prices have been increased in periods of declining steel demand, particularly 1954 and 1958. There is little doubt that resistance to higher steel prices is growing among steel customers. Such resistance is slower to take effect than in industries that deal directly with customers, but the consumer resistance to higher prices is reflected initially to the manufacturer of consumer products and then ultimately back to the steel producer.

Competition in the Steel Industry

There has been considerable controversy over whether the similarity of prices that prevails among many steel producers is indicative of price competition. After the recent Kefauver hearings, the majority report stressed the point that steel prices are so-called "administered" prices, that is, are set by the industry and held constant for a period of time. "Administered" prices were differentiated from "market" prices, in which flexible prices are equated by supply and demand. In "administered" prices, a decline in demand is met by a reduction in production and price maintenance; in "market" prices, a decline in demand is met by lowered prices in order to keep volume up as much as possible. "Administered" price practices in the steel industry were not considered competitive by the majority of the committee.

The minority report, on the other hand, concluded that the nature of the steel market is such that competition results in an identity of steel prices. If any price reduction is immediately known and met by competitors, price uniformity is unavoidable. Such price uniformity is not, in itself, evidence that price competition does not exist. As a matter of fact, a substantial portion of the price structure of our economy is characterized by so-called "administered" prices. To this the writer might add that meeting the prices of the lowest cost, most efficient producer is a requirement for a company to operate successfully in the intensely competitive steel industry.

Steel Price Inflexibility

There is no indication that the steel price wars that characterized the pre-World War II period are likely to recur. Extended discussions on this subject with leading steel executives over the past six years—as well as the experience of the industry in raising prices in both 1954 and 1958 when steel demand was low—have provided strong indications of the change in attitude in the steel industry. Steel executives mention frequently that because of the inability to keep price cuts secret, any price reduction would quickly be met by competitors, and everyone would wind up with the same proportion of the business at a lower profit margin.

A principal reason for the inflexibility of steel prices has been the recognition of the fundamental nature of steel demand by all of the companies in the industry. Because demand for steel is inelastic, severe price cuts would be needed to keep unit sales from falling in a period of declining demand. This would threaten the solvency of many companies in the industry. Moreover, prices would have to be increased substantially in the next prosperity period to provide large, although temporary, profits for the capacity needed. This could easily lead to an uneconomic use of resources, and capacity might well be inadequate over a longer term.

Another reason why prices have been inflexible has been the wide fluctuations in steel shipments as the result of changing inventory patterns. As *Figure* 2 indicates, shipments have fluctuated substantially more than consumption. The industry believes that there is little to be gained in a period of inventory runoff by reducing prices, but, rather, that this is a characteristic of the demand for the product which is inherently self-correcting.

A further reason for the inflexibility of steel prices has been the inflexibility of costs. Labor costs have characteristically moved up without interruption in the postwar period, and labor is a significant portion of total operating costs. In addition, the steel industry is one of high fixed costs as well.

A final reason advanced for the inflexible nature of steel prices has been the demand for substantial expansion to meet the nation's postwar needs. Depreciation postwar has been entirely inadequate to provide the funds needed to replace obsolete plants, let alone to build new plants. Profits have been below that of other major industries. Consequently, the financial markets have not been willing to support the industry's expansion plans. The only method left has been through reinvestment of earnings, and these had to be brought up to a comparative level as soon as possible.

In areas other than price, keen competition also occurs on the bases of quality, service, dependability and availability of steel. With a uniform price and no secret discounts available to all customers, the quality of the product and the speed with which it is made available is of primary importance in selecting a steel supplier. Aggressive selling and personal relationships between seller and buyer are therefore important in this industry. Advertising and product differentiation are not considered important in the minds of steel purchasers.

Restraints on Price Increases

Another confusion about steel prices is the assumption frequently made that prices can be increased at will by the companies. There are several restraints on the power of steel companies to charge continuously higher prices for their products.

1. *Substitutes*: As mentioned earlier, there are a number of products which compete with steel, although, because of its current low price, steel, in general, has a competitive advantage. Therefore, the impact of substitutes under current relationships can be considered of limited significance.

2. *Government Action*: The steel industry is understandably sensitive to the recent investigations of the Kefauver Committee and others into "administered" prices. They are also aware of proposed laws to deter price increases in so-called administered price industries. While there has been no public indication that these actions on the part of government officials would influence prices, it seems reasonable to assume that they have some effect.

3. *Pressure from Steel Customers*: As indicated earlier, a large portion of steel sales is made to other industries that are dominated by a limited number of firms. Consequently, these large purchasers of steel are not at a disadvantage when it comes to discussions about steel prices. There is little doubt that the steel companies have been under considerable pressure from steel purchasers to limit, if not eliminate, steel price increases in the future.

4. *Foreign Imports*: An examination of U. S. import duties on steel products and a discussion on the subject with the major steel companies earlier this year indicated that import duties are considered low on all steel products and that there is no desire on the part of the domestic steel industry to have them increased. Although the schedule of import duties is somewhat complicated and difficult to appraise, the *ad valorem* duty for most steel products seems to range between nothing and 11%. In view of the significantly lower labor costs of foreign steel producers, current import duties are not

considered a significant factor in inhibiting imports into this country.

The steel industry believes that the major limiting factor on substantially higher imports into the United States is not import duties, but rather the limited availability of all types of steel products for shipment to this country. For example, Western Europe has a limited supply of tonnage items requiring a high degree of manufacturing skill (such as cold rolled sheets, tinplate, etc.). Secondly, a substantial portion of European steel is made by the Bessemer process because of the type of ore available in Europe. Such steel does not have the deep drawing qualities of steel produced from Western Hemisphere ores in this country by the open hearth process. Moreover, certain products such as cold rolled sheets are subject to age hardening if not used within a limited time after their production.

On the other hand, in future periods imported steel could be a significant threat to the domestic steel industry. As European production expands and as more high-grade ore is exported from the Western Hemisphere to Europe, there is reason to believe that foreign steel on a quality basis could be produced equal to that produced in this country at significantly lower labor costs. Although raw material costs might be higher, the labor cost differential, if continued, might go far to redress the balance.

The opening of the St. Lawrence Seaway should encourage further steel imports into the broad Mid-West market because of the lower transportation charges available. In addition, growth of the European Common Market should result in increased steel production so that, from a longer term point of view, larger tonnages of steel might be available for shipment to the United States. Steel imports may not be an immediate threat to the industry in this country but potentially could be a serious threat so long as the relative labor cost disparities between European production and United States production continue.

Profit Performance

Although attention has properly been paid to the gains in earnings of the steel companies, the crucial issue for investment managers is more the profit experience of the steel industry *relative to other industries.* This may be illustrated by *Table III,* taken from Fortune magazine's 1957 ranking of companies by dollar sales and profits and by profits as a percent of sales. This year was selected as the most recent year of good business for the industry. As indicated, the eight leading steel companies rank substantially higher in terms of dollar sales and profits than they do in percentage of returns on sales.

Table III

1957 "Fortune" Ratings of Steel Companies Among 500 Industrial Companies

Company Ranked In Capacity	Rank by Sales	Rank by Profits	Rank by Profits as % Sales
U. S. Steel	4	3	60
Bethlehem	9	11	132
Republic	27	19	144
Jones & Laughlin	45	47	217
National	57	46	138
Youngstown	53	53	170
Inland	49	31	114
Armco	47	36	139

Source: "Fortune," August 1958.

To illustrate the change in steel industry profit performance, certain data from the Wellington files may be of interest. *Table IV* shows the average sales per ton of steel shipped, average labor cost per ton of steel shipped, the average operating profit per ton of steel shipped and net income as a percent of sales for six leading steel companies in 1940, 1947 and in 1957, together with the percentage increase over these periods. The table shows that although labor costs have gone up in the postwar period, a somewhat greater increase in realization on sales and a reduction in other costs per ton have resulted in a significant increase in operating profit per ton. However, operating profit per ton as a percent of sales is only slightly higher than the best prewar year, and, after allowing for other changes, net income as a percent of sales is still not so favorable as it was in 1940. The annual statistical reports of the American Iron & Steel Institute further bear out this point; net income as a percent of sales for the entire industry was 7.3% in 1957 versus 6.2% in 1947 and 8.1% in 1940.

The main question, of course, is whether these increases have resulted in steel becoming more profitable

Table IV

Significant Profit Performance of Six Leading Steel Companies 1940, 1947 and 1957

	1940		1947		1957	
Sales per ton	$71.34	100.0%	$105.16	100.0%	$187.50	100.0%
Labor cost per ton	24.01	33.7	37.27	35.5	64.11	34.2
Operating profit per ton	12.81	18.0	15.36	14.6	35.55	18.9
Net income as % of sales	8.5%		6.5%		7.3%	

	Percent Increase 1940-57	Percent Increase 1947-57
Sales per ton	162.8	78.3
Labor cost per ton	167.0	72.0
Operating profit per ton	177.5	131.4

Source: Wellington Management Co. data derived from company annual reports.

than industry generally. In order to answer this question, reference is made to a sample of 110 large industrial companies in 24 industries on which data have been compiled by the Wellington staff for the period 1947 through 1957. *Table V* shows net income as a percent of sales, cash earnings (net income ÷ depreciation) as a percent of sales for all of these companies for the years 1947 and 1957. The lower part of the table shows comparable figures for the steel industry for the same periods. The subnormal profit position of steel versus other large industrial companies in 1947 is clearly indicated, and the more average performance for the year 1957 is shown also. It seems reasonable to conclude, therefore, that the steel industry has not been abnormally profitable relative to other industries but, postwar, has merely improved to a more average standing.

CONCLUSIONS

The conclusions that seem warranted from this review are as follows:

1. The steel industry is definitely competitive with respect to quality, service and availability of steel and also with respect to price. Although steel prices do not fluctuate like the prices of securities or farm commodities, price competition is indicated by the fact that prices of the lowest cost, most efficient producer are met by the other companies in the industry. Prices do not have to fluctuate day-to-day to be competitive; in fact, such fluctuations are characteristic of few prices in our economy today.

2. The so-called "administered" price pattern in steel has led to two developments. Steel prices generally have not been raised to what the traffic would bear in times of steel shortages. On the other hand, prices have generally trended upward postwar. This upward trend is accounted for by:

   (a) The inelastic demand for the product, so that price reductions would have little effect, particularly during periods of inventory liquidation.

   (b) The effect of wide fluctuations in steel, which might lead to many business failures in a high capital cost industry and result in uneconomic use of resources and perhaps inadequate capacity over the long term.

   (c) The upward trend in steel manufacturing costs.

   (d) The need to increase profits to levels more typical of industry generally, so that funds to meet the industry's expansion requirements could be raised.

3. Substitutes for steel are limited in scope. However, restraints on excessive price increases come from pressure of large customers, Government threats of investigation and intervention, the recognition by steel management of the critical position of the industry as a pace-setter on prices and wages in the economy, and potentially from increased imports of steel produced abroad.

4. The constant increase in steel prices postwar that have characterized the steel industry may not continue. Price resistance of customers has increased. Profits have been raised from below-average to a level more comparable to other large industries. Major expansion has been accomplished so that shortages and possibly Government construction of steel plants do not seem immediate problems. Moreover, as evidenced by statements of steel executives in the past few years, the industry is aware of the inflationary threat of constantly increasing prices and wages. These increases can be opposed either because of the danger to the economy as a whole or because of the threat of Government intervention and control.

Table V

Profitability of Steel Industry vs. 110 Company-24 Industry Sample of Leading Industrial Corporations, 1947 and 1957

110 Companies-24 Industry Sample:	1947	1957
Net Income as Percent of Sales	8.3%	8.1%
Cash Earnings* as Percent of Sales	11.6	13.1
Pretax Cash Earnings as Percent of Sales	16.8	19.6
Steel Industry Sample:		
Net Income as Percent of Sales	6.0%	8.1%
Cash Earnings* as Percent of Sales	9.8	13.2
Pretax Cash Earnings as Percent of Sales	14.1	21.4

*Cash Earnings are Net Income plus Depreciation.

Source: Wellington Management Company data.

The investment conclusions that seem warranted by this analysis are as follows:

1. With limited ability to increase prices in the future, the steel industry must rely more on internal cost control and efficiencies to improve profit margins. These savings will be offset, in part at least, by the constant upward pressures of labor and other costs.

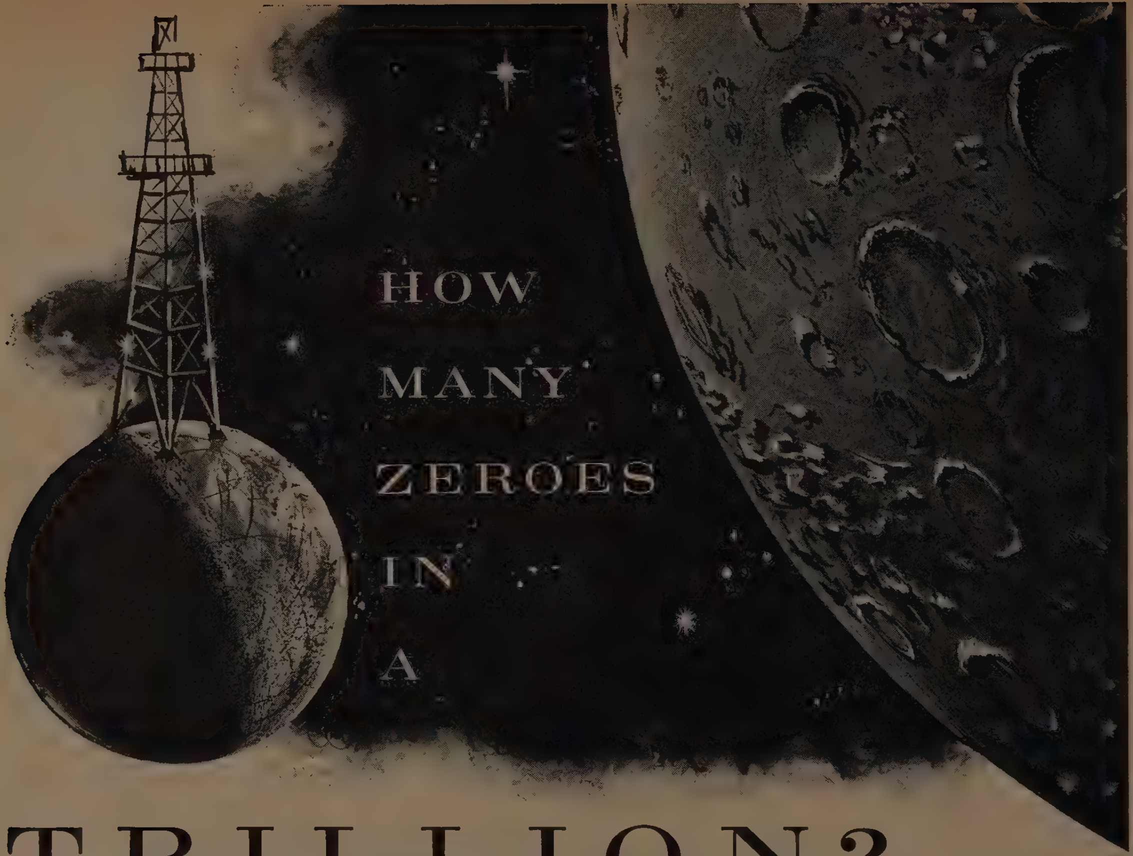
2. Significant further growth in steel earnings at a rate faster than the growth of the economy will be very difficult to achieve.

3. A major upward revaluation of steel stocks has already taken place in the investment field, reflecting recognition of the improved profit performance of the industry. Significant further increases in relative price-earnings ratios seem unlikely.

4. The establishment of regular dividend rates by the leading companies and continued evidence of the industry's ability to maintain these rates may provide yields relatively more attractive than those of other equities.

5. Discerning investors may be able to take advantage of stock market swings in steel stocks resulting from cyclical and inventory fluctuations in the industry and resultant fluctuations in earnings.

6. Steel equities merit a place in any well balanced portfolio; but the capital-gains potentials of the past decade, based on an upward revaluation of the industry by the investing public, is largely completed.



HOW MANY ZEROES IN A TRILLION?

United Gas Corporation and its wholly-owned subsidiaries sold more than one trillion cubic feet of natural gas in each of the past six years — 1,304,000,000,000 cubic feet in 1958. United continues to be the "world's largest handler of natural gas."

CRUDE OIL — The producing subsidiary sold nearly 6.5 million barrels of crude during the year.

NATURAL GASOLINE — Some 250 million gallons of natural gasoline and other liquid hydrocarbons were extracted from processed gas.

MINING — A subsidiary in which United Gas Corporation has a 75% interest is engaged in the mining of sulphur in Texas, potash in New Mexico, and copper and molybdenum in Arizona.

OTHER INTERESTS — United Gas Corporation has a 50% interest in a chemical company manufacturing ammonia fertilizer, polyvinyl chloride resin and methanol, and has substantial interest in a company which up-grades raw gasoline and condensate to produce high-quality motor fuel.

CAPITAL EXPENDITURES NEARLY $60 MILLION PER YEAR

United Gas Corporation and its subsidiaries have made capital expenditures averaging nearly $60 million annually over the past ten years—to explore for oil and gas, to connect new reserves of natural gas to the pipe line system, to extend gas service to new customers and augment deliveries to existing customers, to develop sulphur, potash and chemical properties and to build a copper and molybdenum mining facility.

UNITED GAS
SERVING THE *Gulf South*

UNITED GAS CORPORATION • UNITED GAS PIPE LINE COMPANY • UNION PRODUCING COMPANY

The European Chemical Industry

by Richard P. Windisch

(Editor's note: Because of space limitations, this article was not published in the July issue of The Analysts Journal. Mr. Windisch was among the New York Analysts who visited Europe for the first time, en masse. Six other articles about the European trip were published in the July issue).

IN PREPARATION FOR THE Security Analysts' European trip it seemed desirable to make a preliminary study of Europe's chemical industry to obtain a better understanding of the companies we were to visit. Through use of the chemical journals and the annual reports of the large companies (both domestic and foreign) the following resume was prepared. Since returning, facts and figures gleaned from the trip have been used to supplement and revise the preliminary study.

In comparison with the American chemical industry a number of fundamental differences were found. In practically every country the emphasis on the fertilizer, or plant food production, was stronger than in the United States, as was the dependency upon coal as a basic raw material rather than upon petroleum or natural gas. The reasons for this are quite obvious and natural. However, in the postwar redevelopment of Europe's industry, chemical and otherwise, the influence of an abundant petroleum supply, is having a profound effect. Century old channels of fuel and raw material supplies, based on nationalism and political strategy, are being uprooted by the abundance of cheap hydrocarbons which have become available from many sources. Current expansion and new plants in England and on the continent are being designed and located to take full advantage of this new low cost raw material and energy source.

The reconstruction and modernization of Europe's industry is also being influenced by the realization that future peace is dependent upon more international trade and that the small watertight economic units created by tariffs, quotas and embargoes, are slowly on the way to disappearance. Along this line we discovered that one large chemical company in Europe has been making 12,000 items—many they admitted were unprofitable, but it was felt that for strategic reasons the nation should possess a domestic supply, and the manufacturing "know how" for every useful chemical. This type of policy partly explains why the net profit, in relation to sales of many leading European companies, has been far below those of our leading companies. To obtain full advantage of the world's technological developments a free interchange of processing techniques—as well as natural resources and manufactured goods—has become necessary, and it was observed that this interchange is being aggressively developed.

In our country greater proportionate sales of chemicals to other chemical companies indicates that a producer with cost advantages can figure on getting the maximum outlet for a product and he will not be faced with uneconomic restrictions based on political and nationalistic considerations which were so prevalent in Europe.

Another big difference between European and American practices is created by lower labor costs. The broad-based, highly diversified companies of England, Germany and Italy have about one employee for every \$10,000 in sales, while in the U. S. each employee accounts for almost \$20,000 in sales. This, in spite of the fact that our fuel and raw material costs are much lower and price levels are about the same. American high wage rates have made the desire for automation more pronounced than abroad, where one still sees many hand operations which have long disappeared in our modern plants.

It was quite amazing to see the hesitancy to eliminate jobs through automation in the highly-populated countries in Europe in spite of the fact that there is little organized union opposition to such practices. While we gained the impression that most industries were less harassed by union demands, nevertheless, management assumes a more paternal attitude toward their workers through the granting of numerous non-monetary fringe benefits—welfare work, etc. Most large companies were proud of their large investment in workers' dwellings, hospitals, employees' centers, etc. In some countries it is estimated that employee welfare constitutes a financial load on the company which may run half again as much as direct wage and salary costs.

U. S. PRODUCTION AHEAD

During World War II the chemical production of the United States shot ahead of that in most other countries because of its vital role in conducting the war, and because this country had an abundant supply of low cost capital and raw materials with which to exploit new products and processes as fast as they were discovered.

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At the same time, many nations competing in the export field were handicapped by heavy war destruction and lack of capital and materials.

Many foreign companies are now in a better position to meet the heavy capital demands of the industry and are in an active period of growth. Through affiliations certain ones are in a position to profit from the great technical progress which was so expensively developed in the United States through the heavy "Research and Development" outlays of the last two decades.

Much of the recent chemical growth in the United States has been centered in petrochemicals, a group scarcely recognized as such before World War II. Europe's great organic chemical industry, before the last war, had been mainly based on coal. Our low cost hydrocarbon supplies derived from petroleum, natural gas and refinery gases have given birth to a whole new group of basic raw materials such as ethylene, propylene and butylene and new intermediates such as styrene, acrylonitrile, ethylene oxide, glycol, etc. The same hydrocarbon sources are also challenging coal as the cheapest source of many of the world's old-line basic organics, such as benzene, toluene, xylene and acetylene.

Table I

***Chemical Production of the World**
Before and After the War
(Expressed in 1954 prices)

	In Millions		
	1954	1938	% Increase
World Total (Est.)	$51,100	$17,100	200.
U. S. A.	22,000	5,120	330.
Germany East & West	4,177	3,580	16.2
Great Britain	3,800	1,472	158.0
France	2,000	960	107.0
Italy	1,200	704	70.7
Belgium	524	288	82.0
Netherlands	424	192	120.0
Switzerland	395	128	208.

Percent of World Production

	1954	1938
U. S. A.	43.0	29.0
USSR	13.5	8.2
Germany East & West	8.2	21.4
England	7.5	8.6
France	4.0	5.6
Japan	3.3	5.6
Italy	2.4	4.1
Belgium	1.0	1.7
Netherlands	.9	1.1
Switzerland	.8	.6

Source: Metzner, "The Chemical Industry of the World."

What is more, petrochemistry is even striking at the roots of agricultural chemistry since it has become an important source of many products originally derived mainly from natural sources, such as ethyl and methyl alcohols, acetone, acetic acid and glycerine. While many of the above chemical commodities may not be familiar to many investors, they should be recognized as the basic building blocks for our new elastomers (rubbers), synthetic fibers and coatings, as well as for antifreeze, synthetic detergents, plastics and films. Except for the extremely low cost of raw materials, many of these finished products would not be economical at all. Many of their raw materials are by-products of motor fuel production and were being consumed as industrial fuels.

What is internationally significant is that petroleum, the most versatile of these low cost hydrocarbon sources, is found abundantly on many continents and easily lends itself to marine transportation. Therefore it is now readily available at every port in the world. With the patents on many processes expiring and with the willingness of companies to sell and license their "know how", American petrochemical development is rapidly spreading around the world, particularly in Europe.

Table II illustrates Europe's interest in petrochemicals:

Table II

	Expenditures to 12/31/56	Estimated 1957-1959 Expenditures	Estimated Total by end of 1959
	Millions of Dollars		
Britain	$170	$144	$314
West Germany	128	150	278
France	50	240	290
Italy	51	100	151
Holland	13	10	23
Belgium	6	17	23

Figures published late last year show that total chemical production in the 16 nations of OEEC increased 10% in 1957 versus 3.5% in the United States, and in the first half of 1958 an increase of 6% corresponded to a decline of 9.2% in the United States. The leading chemical companies of Europe are to varying degrees in the same position as ours were a few years after 1946, when war-deferred construction caused a period of accelerated plant expansion which showed no sign of declining until last year.

With the benefit of our mass production experience, it would seem as though Europeans might avoid many of the heavy pilot plant and "start up" expenses which arose when our companies pioneered their multi-million dollar plants into production. After all, production and marketing knowledge of new products can only be gained through experience and, in spite of scientific planning, a certain amount of error cannot be avoided. Many of our costly mistakes are being avoided by international cooperation. Among the world's great chemical companies, the interchange of "know how" is now being conducted with surprisingly good spirit and with liberal granting of licenses and formation of joint ventures. Today sees many of our great engineering and designing companies actively constructing petrochemical plants throughout the world. European engineers are, in turn, designing fertilizer (ammonia and urea) and acetylene plants for us. Plant food is one type of chemical which is more highly developed in the older nations because of their soil exhaustion and population concentration. Western Europe uses 49 pounds per acre of agricultural land versus 11.5 for the United States, hence there would be a tremendous expansion in U. S. production of fertilizer base products (ammonia, phosphates and potash) if our use grew to only half of theirs.

The investment opportunities currently available in foreign chemical fields are being taken advantage of in two ways—first, by American companies building plants and undertaking subsidiary or joint operations in foreign locations and, second, by American investors purchasing directly the securities of foreign chemical companies. Almost every week the chemical press announces a new foreign plant to be built by one of our leading chemical companies or one of Europe's. We shall proceed to review the currently reported foreign activities of our leading American companies and then discuss the world's great chemical companies and how they compare with ours.

EUROPEAN COMPETITORS RESPECTED

While most U. S. chemical companies, until recently, have had all they could do to keep up with domestic developments, a few of them have always made an effort to parallel their domestic activities abroad or to export where chemical manufacturing conditions were economically or politically unfavorable. Their pre-war operations, however, showed a high respect for European competition and a recognition of the genius of West European science, which periodically revealed itself through brilliant new products and processes. In fact, most of the world's chemical glamor products originated abroad and many of chemistry's new processing principles were conceived there—even during the war.

Our great contribution to world-wide chemistry has been in organizing and engineering the low cost mass production methods which bring widespread usage. The United States has been the true democratizer of chemistry. Our willingness to venture large blocks of capital on the industrial development of a brilliant creation of a foreign chemical genius has frequently put some of our companies in the spotlight. After all, the exploitation of a great discovery for the benefit of mankind may be just as praiseworthy as the discovery itself.

E. I. du Pont de Nemours & Co.

Subsequent to World War I, du Pont led the American chemical industry in a planned effort to "beat our spears into plowshares and our swords into pruning hooks." American-made dyes, fibers, cellophane and quick drying paints were the consequence. In cooperation with Imperial Chemical Industries, Ltd. of England, du Pont formed affiliated companies to supply these to the entire Western Hemisphere. An antitrust suit in 1953 broke up this alliance, and the jointly owned companies were divided into wholly owned subsidiaries of the two parents. Du Pont's 1958 report shows sales to customers outside of the United States at nine percent of its total sales.

In connection with economic integration plans in Europe, du Pont subsidiaries have started building a $16 million neoprene plant in Northern Ireland, to be completed in 1960, and a paint plant in Malines, Belgium, to be completed late in 1959. Plans have also been announced to build a 15-million pound capacity "Orlon" acrylic fiber plant in Dordrecht, the Netherlands. Also announced was the formation of a Swiss sales company with headquarters in Geneva to implement European sales programs for European subsidiaries and products manufactured by the parent company.

Last fall du Pont announced it would elevate its International Department to its twelfth industrial department. Heretofore it had only been an auxiliary department.

Union Carbide Corporation

Carbide, since its early days, has had foreign subsidiaries, particularly in its battery and carbide divisions. It now has 11 battery and flashlight plants throughout the world. In Europe it is operating a calcium carbide plant in Norway; graphite electrode plants in England, France, Italy and Sweden; alloy plants in England and Norway; a chemical plant in England; and plastics plants in England and Scotland. New petrochemical plants in England, Italy and Scotland are now completed or will be in 1959. The company's total overseas construction budget amounted to $29 million in 1958. Early this year it announced another new polyethylene plant to be built jointly with a Belgian company near Antwerp. Union Carbide's foreign sales account for 15-20% of its total sales, with 7% representing exports from the United States. While Carbide carries its foreign investments on its balance sheet at $25 million, the equities in these companies exceed this by $95 million.

Monsanto Chemical Company

Prior to World War II, Monsanto, among our large chemical companies, seems to have been more interested in foreign expansion than others. As early as 1920 it bought a half interest in an old "fine chemical" company in Ruabon, North Wales, which was making rubber additives, medicinals and flavors — products similar to its own. The entire stock of this company was finally exchanged for Monsanto Ltd., which is listed on the London Stock Exchange, but is two-thirds owned by the American company.

This subsidiary now manufactures 80 chemicals, including many petrochemicals. In 1950, jointly with a British Petroleum subsidiary, it formed the first chemical company to make styrene monomer in that country. In 1957 it purchased 100 acres adjacent to the Esso Company's new giant refinery at Fawley, to make polyethylene and acrilonitrile. Today Monsanto Ltd. employs 4,100 and in 1957 did a gross volume of about $45 million in its two plants.

Monsanto was one of the first American chemical companies to recognize the post-war potentialities in Western Europe. As long ago as 1951 it formed a partnership with Societa Edison of Milan, known as Sicedison. Its major activities consist of manufacturing petrochemicals in the Po Valley. This tidewater location, near Venice, close to local petroleum supplies and nearby Middle Eastern oil, has much similarity to our Texas Gulf coast. It is reported that crude oil is available today in Venice at a lower cost than at Houston. For the manufacture of basic petrochemicals it should be one of the best locations in all Europe.

Affiliated companies in Spain, France, Belgium and Sweden manufacture under Monsanto processes, and just recently a joint plant has been announced to make PVC in Turkey.

As early as 1940, Monsanto formed a joint subsidiary with a local Australian producer which is now one of the largest producers of chemicals and plastics on that continent. Monsanto's half-owned affiliate, Chemstrand, has just opened a $10 million acrylic fiber plant at Coleraine, North Ireland, where all materials will be handled on a free trade basis.

Reichhold Chemicals

This company believes it is the largest producer of synthetic resins for use in the surface coating, laminating, textile, paper, adhesive, foundry, polyester and other fields, and manufactures many plastics intermediates and basic industrial chemicals. It has stock interest and licensing arrangements with affiliates in 23 other countries.

All together it has an interest in 25 foreign plants with 5 more planned. In 1957, approximately 19% of its net income was derived from dividends and royalties from foreign companies. On its balance sheet the company carries its investment in foreign companies at a figure equal to 30% of its domestic fixed assets. Its newest venture is a purchase of 22 acres north of Bordeaux (France) where a new plant is being built to produce special synthetic resins, formaldehyde and pentaerythritol. This plant will be served by a natural gas pipe line from France's new gas field in the Pyrenees. Recently a new plant in Lisbon (Portugal) went on stream.

THE ROLE OF PHARMACEUTICALS

The leading American pharmaceutical companies, with few exceptions, have always made efforts to sell and manufacture their leading products abroad, mainly, however, in the tropics and south of the equator. It is in this group that we find the highest percentage of foreign sales. Growth here has been tremendous, due to the advantages our drug manufacturers have enjoyed, such as automated packaging and absence of competition, but most of all, because of the development of new products through large research expenditures. Foreign business is especially important to Parke Davis, accounting for 32% of its sales; Sterling Drug, 35%; Warner Lambert, 25%; Abbott Laboratories, 24% and Vick Chemical, 20%. The only two companies included in this report are Pfizer and Merck, because we consider them medicinal chemical manufacturers as well as pharmaceutical companies, due to their production of many other fine organics.

Pfizer, since the end of World War II has opened 19 plants abroad mainly to manufacture antibiotics and it now sells its products directly in over 100 countries. With its early recognition of the potentialities for antibiotics in foreign countries, this company has gained the position of our leading international chemical company in having 39% of its sales abroad. Foreign sales increased 12% in 1958, versus an increase of 4½% in domestic sales.

Merck, although an outstanding pioneer in biochemical developments, is handicapped in foreign business, due to confusion of its name with that of a prominent German company with a similar name. In 1945, however, it organized a foreign exporting subsidiary which features its Sharpe & Dohme name and is a big factor in DDT which has wide usage in the tropics. About 27% of Merck's total sales are abroad.

OTHER AMERICAN PARTICIPANTS IN INTERNATIONAL CHEMISTRY

Many other American chemical companies have, over the years, developed a foreign business which exceeds the industry's overall export rate of 6%, but it must be considered that very often their high rate of foreign sales is due to foreign manufacturing. American Cyanamid has sales outside of the U. S. and Canada of about 15% of its total sales, and has a substantial business in mining chemicals, flotation reagents, etc. It is also making a strong effort to promote its laminated plastic "Formica" in the British Empire and Europe, and, of course, the Lederle division, like other drug companies, sells heavily overseas.

While Dow's export sales date back to 1903, the company showed no real interest in developing them until after World War II. During the last five years they have increased 350% and now represent approximately 9% of consolidated sales. Dowell and Dobeckmun each have two wholly owned foreign subsidiaries covering their specialties. Besides two wholly owned sales subsidiary offices in twelve countries, the company owns its own docking and warehouse facilities in Holland.

Hercules, through its strong position in naval stores and their derivatives, has chemical to sell to the world which are not generally obtainable elsewhere because we produce the major portion of the world's turpentine and rosin. Hercule's last reported foreign sales were 13%. Heyden Newport is also in this field.

Rohm & Haas, through plexiglass and special chemicals, enjoys foreign sales of approximately 12% of total output.

In the chemical mineral field, the United States supplies the world with 90% of its borax, which is widely used in making glass, detergents and enamels. The U. S.

Borax & Chemical Company of California owns the largest and lowest cost borax deposit in the world. Normally about 35% of our borax production is sold abroad. The U. S. Borax and Chemical Co. supplies about 70% of our total production, American Potash and Chemical 20% and Stauffer 10%.

Up until recently we were the world's only producer of Frasch sulfur, but between the new Mexican discoveries and the growing recovery of sulfur from fossil fuels and smelter gases, it looks as though we could lose a good part of our former export trade in this vital chemical element. The discovery of natural gas deposits in Southern France which are very rich in sulfur will substantially reduce our exports to Europe as soon as recovery plants are completed.

The United States is one of the world's principal suppliers of phosphate rock, and 20.4% of our total production is exported, up from 15.6% in 1951. International Minerals, American Agricultural and Virginia Carolina each have substantial foreign sales from their Florida deposits which are ideally located for ocean shipping. The war conditions were particularly adverse to the world's other suppliers located on the Pacific Islands and in North Africa, but with the return of shipping facilities and of venture capital, it looks as though our companies would no longer enjoy a preferred position.

Of our semi-chemical companies, of course, Eastman has had the world's photographic business practically to itself during and immediately after the war. However, West European and Japanese producers are now back in the market, but with the rising tide of world prosperity there should be room for all. Eastman, with its superlative research organization and world-wide sales experience extending over seven decades, should not find it too difficult to hold its position as world leader in photographic chemistry. In a minor way, Eastman is also aware of its opportunities abroad for other chemicals. 24% of Eastman's sales and 17% of its assets are outside of the United States.

Olin Mathieson, since 1954, has acquired stock interests in chemical and pharmaceutical companies in Italy, Belgium, France, Spain and West Germany, including a 25% interest in Chemische Fabrik von Heyden. The company now has affiliated companies, plants or manufacturing licensees in 38 foreign countries and distribution facilities in many more.

CHEMICAL LEADERS ABROAD

In passing from an outline of the activities of American companies abroad to a description of the great foreign chemical leaders, a few quotations from a study prepared by William J. Platt, deputy director of economic research at Stanford Research Institute, and dated August 1958, seem in order.

"Western Europe represents a frontier of new economic opportunities for the alert industrialist be he European or American . . . market growth here during the next decade promises to equal or even exceed that in the United States . . . Let the American entrepreneur be warned that certain top companies in each of the major European countries are as efficient as their foremost American competitors. They are proving this by competing on equal terms in third continent markets, like Latin America and Africa, where European firms are as successful as their American competitors. Examples of European companies that are demonstrating this capability include Montecatini, Bayer, I. C. I., etc. the management of these top European companies which successfully compete in world markets are fully as sophisticated and aggressive as the best of our own."

England and Its Great I. C. I.

In 1926, four great British chemical companies, each dominating its particular field, were consolidated into one gigantic unit known as Imperial Chemical Industries Ltd. These companies were the British Dystuffs Corp., United Alkali, Brunner Mond (soda ash and ammonia); and Nobel Industries Ltd. (explosives and cellulose). This combination — far broader in scope than anything in this country—became a trust with government blessing. It was similar to those evolving contemporaneously in Germany, Italy, France, Belgium and Czechoslovakia. Today ICI operates over 100 works in the United Kingdom, makes 12,000 different products and employs 116,000. It is reputed to be the largest manufacturing corporation in England and accounts for one-third of Britain's chemical sales. It is also one of Britain's largest exporters and sells just over a quarter of its production in 42 countries. Besides having large subsidiaries in Australia, Canada and South Africa, it also manufactures in Argentina, Austria, Brazil, Chile, France, Germany, India, Ireland, Kenya, New Zealand, Pakistan, Spain and the United States.

Internationally ICI probably ranks next to du Pont as the second largest producer of chemicals in the world, with sales (almost all chemically processed) of $1.3 billion. ICI technologically has been a pioneer in developing polyethylene, polyester fibers and several world known pesticides, such as 2-4D and BHC. Since 1946 it has built a large petrochemical plant near Billingham on the River Tees, and has just announced a major new petrochemical complex on the River Severn, to cost $280 million over 10 years. ICI is prominent in the production of plastics, paints, and fertilizers (England uses 6 times as much per acre as the U. S.). It also has a strong interest in the new metals and organo-silicon compounds. Recently its efforts have been turned to pharmaceuticals and photographic products (Ilford) which so far have not been prominent in its growth.

As in the field of diplomacy, British management believes in putting its affairs in the hands of specially trained men. Sixteen out of nineteen directors, and 67% of the 240 top men of ICI have either a scientific or engineering degree.

Another prominent factor in Britain's chemical business is Distillers Ltd., which is world famous for producing two-thirds of England's whiskey and gin, and the owner of such well known trade names as "Johnny Walker", "Haig & Haig", "Black & White" and "White Horse", etc. Besides packaged goods, it supplies most of the industrial alcohol, yeast, molasses and vinegar for Britain, Australia, South Africa and Canada. Distillers Ltd., in the last two decades, has become the producer of 90% of England's calcium carbide, a large portion of her organic chemical solvents, antibiotics, plastics and sole producer of magnesium metal. Through subsidiaries Distillers has a strong position in petrochemicals and has a tie-up through working agreements and subsidiaries with Monsanto, Oronite (Standard Oil Co. of California), Dow, Hercules Powder, Shawinigan, Commercial Solvents and Courtauld's Ltd. With Monsanto it is building a large petrochemical plant adjoining British Petroleum's new refinery.

Britain's petrochemical opportunities are tremendous and she is already the world's second biggest producer. As petroleum supplants coal as a fuel, great quantities of low cost refinery gas will become available. The present refinery capacity of crude is 31 million tons and with the second major phase of expansion under way, this will be brought up to 47 million tons. Esso and Shell have announced plans to build their own petrochemical plants adjoining their refineries. The trend to petrochemicals should ultimately reduce Britain's import requirements of textile fibers, rubber, lumber, metals, hides, natural oils and fats, etc. American Depository Receipts of both ICI and Distillers Ltd. have been traded on the American Stock Exchange for several decades, and can be purchased to yield nearly 4½%.

Italy's Montecatini

The Italian chemical industry is very efficient and progressive, and claims to produce the world's lowest priced sulfuric acid and nitrogen fertilizers. By the end of 1956, it had reached three times its pre-war size. For the American investor, Italy offers American Depository Receipts of Montecatini (founded in 1888) which are listed on the New York Stock Exchange. This company directly accounts for 45% of Italy's chemical production and through subsidiaries a much larger percent. It controls 174 plants and mines (56 outside Italy) and employs 60,000. Seventy-five percent of its sales of approximately $200 million are domestic. Its large hydro plants, located in the Southern Alps, account for 8% of Italy's entire power production.

The company, through its subsidiaries, is reported to be the largest producer of power for internal consumption in all of Europe. Some of this is used in its aluminum plants, non-ferrous metal smelters and marble quarries. The company's production also covers almost all branches of the chemical industry, from fertilizer to pharmaceuticals, including plastics, fibers, dyes, paints and explosives. Montecatini takes a leading role in Italy's oil exploration, produces one-half of her aluminum and with FIAT will build Italy's first atomic energy plant.

In research and engineering (10 centers), Montecatini is a leader, with credit for developing processes for making fertilizers (urea) and plastics, for which it receives royalties from users around the world. Its recent development of catalysts for controlling stereospecific polymerization of plastics has fundamental significance. Its ammonia process is also world famous and is used by 60 companies in 24 countries. A new formaldehyde process has just been announced and the company's work on a new synthetic rubber called PEP is very promising. PEP is a polyethylene-propylene copolymer whose raw materials sell for one-third those of our generally used SBR rubber. Last year a joint company with Austria's leading chemical company announced a plant near Vienna, to make petrochemicals from Austrian petroleum.

Montecatini publishes its report in English. It is one of the most complete and explanatory reports we have seen and even details the annual tonnage production of its leading products. In its labor relations and social welfare among its employees, the company seems equal to America's best. Recently, employees' stock participations have been approved and the Italian Government is reported to be a large stockholder.

There is no antitrust legislation in Italy. However, the government has countered by going into petrochemical and fertilizer production on its own account. Italy is one of the few countries in Europe which does not grant patent protection in pharmaceuticals, but sets quotas and grants import licenses. While generally the Italian chemical industry is apprehensive over the effect of Europe's Common Market, Montecatini is optimistic.

Italy stands at the gateway to some of Europe's lowest cost petroleum sources and has a well located natural gas production of its own. With its abundant water and labor supplies and many good harbors, it is in an ideal position to develop a low cost petrochemical industry. Cheap hydrocarbons, it must be remembered, have a double advantage in making chemicals because they serve as a basic raw material as well as a fuel source.

Germany's Big Three

The German chemical industry presents a highly complex corporate picture. Affiliates, subsidiaries and associates are legion. Here we also find the most highly developed and integrated production setup anywhere in Europe, as there has been much less inter-company selling (20%) than in the United States. This is fostered by a turnover tax from which certain other European countries also suffer.

The German chemical industry has been primarily based on the nation's rich coal and saline deposits. However, post-war expansion so far involves $190 million for new petrochemistry plants, with $100 million more planned; this is exclusive of the cost of converting old coal based plants to petro sources. Germany's oil refining capacity of 15 million tons is to be expanded to 32 million tons by 1961 and probably 50 million tons by 1965.

During the inter-war period the major proportion of Germany's chemical production wound up in the great I. G. Farben Industrie, which at the beginning of World War II, unquestionably was the largest chemical company in the world, with sales estimated at $660 million (compared to sales of $46 million for du Pont in 1940). This great combine at one time employed 218,000 workers, had 137,000 stockholders and was estimated to do 30% of the world's export trade in chemicals. One of the conditions of the peace treaty was that cartels be abandoned in Germany and a state of free competition restored. The main portion of I. G. Farben's operations located in West Germany wound up in three large successor companies known as Farbenfabriken Bayer, Farbwerke Hoechst and Badishe Anilin & Soda Fabrik, and their affiliated companies and subsidiaries. These are estimated to own 36% of the former Farben assets. Another 36% was in the Soviet Zone and the balance was lost abroad.

Available to Investors

For the American investor the three major segments of the former great dye trust are now available in the form of American Depository Receipts, issued by New York banks and traded over-the-counter. All three companies enjoy high grade progressive managements and a spirit of competition exists among them. They seem to be following somewhat different paths in their manufacturing and marketing endeavors. All three of the companies are highly interested in dye stuffs, and in plastics, due to the national scarcity of metals and wood.

However, each company features different types of dyes and different plastics. Bayer also features photographic products 16% (Agfa), pharmaceuticals 9% and pigments; Hoechst, pharmaceuticals, industrial gases, phosphorus and fluorine chemicals, cyanamide, synthetic fibers and films; and B.A.S.F., calcium carbide, anti-freeze, and high pressure syntheses (ammonia and acetylene). The main plants of all three are located on the Rhine or its tributaries and therefore enjoy ideal water, fuel and transportation conditions and are very close to the population center of Europe. Their foreign activities are widespread and energetic and each is actively making connections around the world. Bayer has a joint subsidiary in the U. S. with Monsanto, Badische with Dow, and Hoechst with Hercules. Each has increased its dividend from the 4% inaugurated in 1952 to 14% paid in 1959. In the six year period since their segregation in 1953, aggregate sales have increased from $510 million to $1,288 million in 1957. Each company now sells about 11% of Germany's total chemical output.

The Farben successor companies each have ancestries going back to the early coal tar days and were sizable companies at the turn of the century. Each also has a record of outstanding contributions to world chemistry, besides those in the dye field: Bayer, with its aspirin, titanium dioxide, organic insecticides and isocyanates; Hoechst with its serums, vaccines, and hormones, and Badische with its synthetic indigo, contact sulfuric acid and nitrogen fixation in the early days—and recently its acetylene chemicals.

German accounting practices unfortunately are similar to those of other continental countries, in that they seldom show much more than the dividend as earned. All other profits are concealed by heavy charges for depreciation and other reserves. Therefore, their price-earnings ratios can not be ascertained. Each claims research expenditures of 4% - 5% of sales. To estimate their results compared to our companies, one can only examine the gross profits and attempt to compare them on a basis of cash flow or operating profit on sales.

OTHER FOREIGN CHEMICAL LEADERS

The great chemical companies of France, Belgium, Holland, and Switzerland offer difficult opportunities to the American investor because American certificates are not available and annual reports, except for Ciba, are not translated.

France has twelve companies, each of which manufactures over $25 million of chemicals per year. Outstanding among them are Rhone-Poulenc, Etablissements Kuhlmann, Saint Gobain and Pechiney. The first of these has sales of over $100 million, largely in pharmaceuticals, cosmetics, fine organics, solvents and plastics. Kuhlmann, established in 1825, has ancient coal tar ancestry and seems very alert in rotating its activities toward the new petrochemicals and their integration products and is also a large producer of fertilizer, calcium carbide, etc.

Pechiney is almost half aluminum and, besides being identified with the development of France's bauxite deposits, will have a prominent position in colonial development along this line. It is also France's leading electrochemical producer, particularly of chlorine, caustic soda, and calcium carbide. Like other chlorine producers it has ventured into plastics. Saint Gobain (founded by Louis XIV in 1665 to break the Venetian glass monopoly) is still France's biggest name in glass. The company, as early as 1806, began to make its own soda ash. This, in turn, led to sulfuric acid and as a result the company has become one of the leading producers of plant foods, particularly phosphates and nitrogen. Its interests in alkalis naturally led the company into chlorine, which has been followed on down into a line of plastics. This, in turn, led to petrochemicals, in which the company has a joint operation with Shell. Its glass interests have led the company into silicones.

All four of these companies have widespread international interests in foreign manufacturing plants and benefits from rights to manufacture under their patents. It should be noted from table II that the estimated petrochemical expansion in France in the years 1957-58-59 will be the greatest of all countries in Europe and sufficient to bring her capacity somewhat in line with that of England and Germany. The new French government has recently abolished the ban on the export of French securities.

Belgium's chemical efforts run largely to the heavy basics with a line of coal tar products tributary to her coke ovens. The original Solvay Process (1863), which is still the standard method for making soda ash stemmed from a Belgian named Ernest Solvay, who, until his patents ran out, made alliances with most of the big alkali makers and users around the world, including Allied, Wyandotte and Owens-Illinois in the United States.

The Solvay glass and chemical empire, through a still existing partnership organization, has survived the disintegrating influences of time and taxes, so that today it remains one of the greatest aggregations of industrial wealth still in family hands. Belgium's production of ammonia in relation to the coke industry naturally led her into nitrogen fixation when it was mastered, so that today she is one of Europe's leading exporters of nitrogen and phosphate fertilizers. Like so many other European countries, Belgium also has a dominating broad-based chemical company known as Union Chemique Belge, whose stock is listed locally. She is also the home of a large photographic materials producer, Gevaert, whose products are widely exported. For nearness to the ultimate consumer, Belgium has geographical advantages, as it has been estimated that over 165 million people live within a 300 mile radius of Antwerp.

Holland, due to discovery of new salt deposits, may become one of Europe's major chlorine producers. Her position at the mouth of the Rhine augurs well for the development of a petrochemical industry adjoining the large oil refineries now there and under construction. Royal Dutch-Shell and Esso are actively working on this. In view of the nearby consumer market and its position as to water supplies, navigation, and raw materials, Holland has an enviable position for becoming a petrochemical center. Unfortunately the state has aggressively entered the chemical field on its own account which is not propitious to private investment. Free enterprise, except for the large synthetic fiber company AKU, Unilever and Royal Dutch, is represented in the chemical processing field by 500 small companies.

Switzerland, because of lack of raw materials, has not developed a heavy chemical industry. However, it is the home of four very old "fine chemical" companies which are world renowned for their dyes and drugs, etc. — Ciba, Geigy, Hoffman-LaRoche and Sandoz. Ciba, the largest of these, publishes its report in English and has a world-wide ethical drug business, besides being very strong in textile accessories and premium plastics. It was the developer of reserpine, our first blood pressure regulant, and has a leading position in epoxy resins and new industrial adhesives. It operates two large plants in New Jersey to supply the American market with its specialties. Geigy is probably the world's oldest single chemical company of record. Its lineage dates back in 1785, when its founders were chemical dealers and it, too, has been intimately tied up with the textile trade of West Europe. It is also prominent in pesticides which are frequently very complex molecules akin to dyes and drugs. Geigy claims the first discovery and development of DDT without which our last war would have been a more horrible story than it was. This remarkable insecticide is the principal agent in killing major disease bearing insects, including the louse and the mosquito. It has become a tremendous influence in ameliorating life in the tropics. Due to war exigencies, Geigy was unable to reap proportionate benefits from one of chemistry's most far reaching gifts to the world.

CONCLUSION

The chemical industry in all parts of the world has always battled with the problems of location. Should a plant be placed at the source of raw materials or power, or at the point of greatest consumption? The relative advantages vary with each chemical produced. With pharmaceuticals and dyes, the location of a plant (except politically) is not too important. In electrochemistry and gas petrochemistry, however, plant location may be critical. Europe's reviving chemical industry is struggling with this age old problem and most of the new petrochemical plants are being built at new locations.

In past years such things as rising transportation costs, polution problems, tariffs and quotas, expiration of patents, and the dissemination of technical "know how" have been factors in dispersing production. The advantages of large operating units seem on the decline and more continuous processes are supplanting batch processes. Relative wage rates and quality of workmanship are also diminishing in importance because of the rapid installation of mechanization and automation. However, in some cases, the scarcity of industrial water, the economy of large power and steam plants, the interplay of by-products and raw materials (often gases) and product integration, still favor manufacturing concentration. Hence, this creates a contrary force with a tendency for operations to congregate into large "complexes" at strategic locations. Badische Anilin for instance is a strong believer in centralization and says it will continue to expand at its home plant as much as possible. Its rebuilt Ludwigshafen complex is today probably the largest single chemical plant in the world, employing 40,000 people on one location. Bayer, on the other hand, says it will not add new lines at Leverkusen, but will carry out most of its expansion at other plants. Montecatini and I.C.I. will build their petrochemical plants at brand new locations.

In overseas trade the balance runs in favor of dispersion largely because most chemicals are either corrosive, flammable or perishable. Therefore shipping regulations and the cost of containers (plus their return) present added problems which must be considered. Nationalism is seldom a factor with chemical consumers, although it may be with governments which have an eye toward strategic supplies in case of war. Chemicals, seldom carry a label of their source to the ultimate consumer and are often bought and sold as staple commodities—particularly where they are used as reagents or ingredients. In many cases quality and dependable deliveries are the best salesmen and price alone is inclined to be a third consideration. Many European companies possessing advanced "know how" and great experience in manufacturing are using the present opportunities to develop world trade through building strategically located plants near consumption centers where low cost petroleum or gas is available; i.e., Italy's new ventures in the Middle East, and the German companies in South America.

Only companies which have abundant financial resources will be able to aggressively pursue foreign ventures because in chemical expansion the sum invested generally must be more than the annual sales volume anticipated. In order to meet these requirements local capital is often taken in on a partnership basis. Today aggregate capital requirements of Europe's growing chemical industry, both at home and abroad, represent a tremendous sum.

Many oil companies are integrating their refineries toward the petrochemical trend, but we believe that geological exploration and distribution problems will give these companies plenty to do with all of the capital they can comfortably raise. Besides, most oil companies are now aware of the technical and sales difficulties involved in following petrochemicals down to the ultimate consumer. Shell Chemical, however, is an outstanding leader in integrating its basic hydrocarbons into chemicals. We would expect to see many more joint operations and "over-the-fence" contracts between the oil and chemical companies of Europe.

The day is rapidly approaching when merely by importing petroleum alone, an underdeveloped nation can not only meet all of its transportation and fuel requirements but also produce the materials from which it can make most of its textiles, paints and plant food (nitrogen only), as well as very good substitutes for common metals, wood, rubber, soap, leather and some kinds of paper. Besides the various hydrocarbons procured from distilling, cracking, reforming or otherwise separating and rearranging the molecules found in crude oil, the principal other raw materials required would be oxygen and nitrogen from the air. Of course, lesser amounts of sulfuric acid, caustic soda, chlorine and catalysts are also required for some products but most of these are subject to recovery and re-use in a modern plant. Petroleum hydrocarbons have become the most versatile of all industrial raw materials with many of their potentialities still to be uncovered. For instance the burning of a pound of natural gas produces 2½ pounds of water—normally a ridiculous economic procedure, except maybe in the Sahara Desert. However, this is a theoretical example of the chemical versatility of hydrocarbons and their economic potentialities.

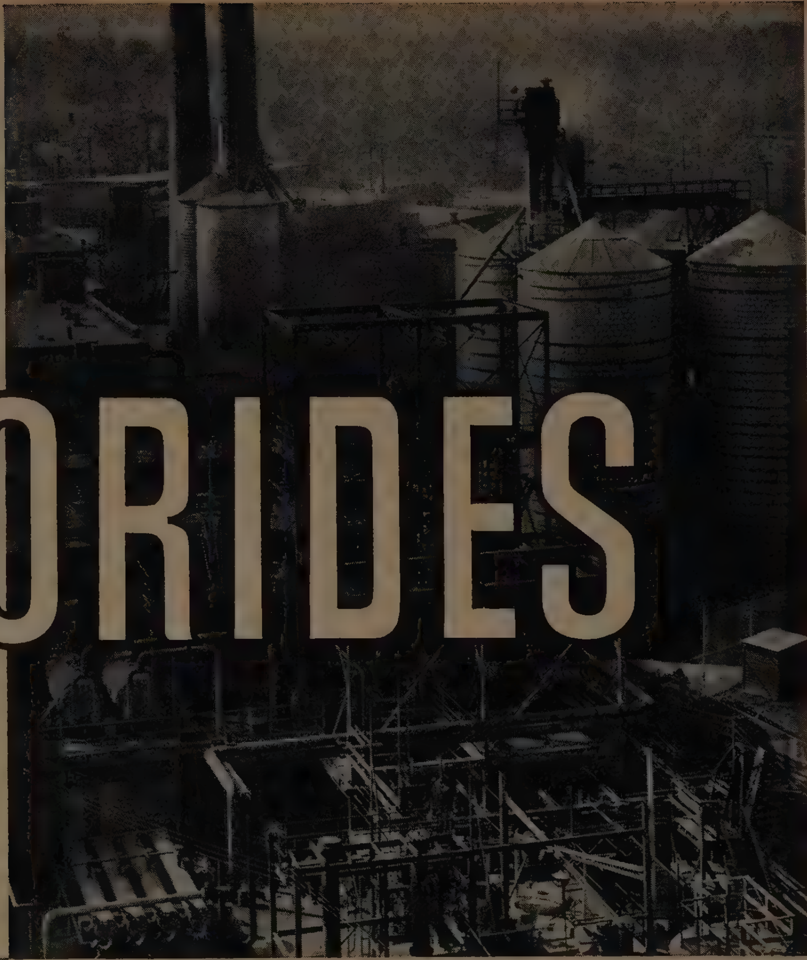
Very definitely it can soon be said that science is slowly delivering many small nations into economic independence—particularly if they have access to cheap petroleum, can borrow capital and corral up-to-date engineering skill. The last two, however, are often very difficult to obtain. It is very likely, therefore, that the world's great chemical organizations, with their pools of scientific genius and broad experience at home, have the best opportunity of duplicating their units for making chemistry's newest glamor products in those lands which offer venture capital the proper protection. These units are likely to cluster around petroleum refineries in order to use the cheap co-products of motor fuel production.

With the present prospects for world-wide development of petrochemistry, we believe the day is not far off when the use of such basic intermediates as ethylene, benzene, propane, acetylene and their derivatives, will become major commodities of commerce. Methane, or liquid natural gas once commercialized would develop a big market in Europe. Ethylene, particularly, could obtain a world consumption running into millions of tons and could be greater than that of any metal except iron. Therefore, the price of crude oil or liquid natural gas is likely to play the same vital role in the industrial future of many areas that iron and coal played in the last century. This transition will be more important in Europe than on any other continent, as most of Europe's highly developed industrial system has been based on its rich deposits of iron and coal, and so far its discoveries of oil have been minor. Fortunately oil occurs over wider areas and in many political subdivisions. It is more easily transported than either iron ore or coal and as long as the seas are open it should be abundantly available to all.

Petrochemistry, it should be noted, is not the sole influence in shaping Europe's chemical industry. Broad-based European and American companies are rapidly establishing facilities at many industrial centers for the sale, packaging, and sometimes the manufacture of their specialties, such as pharmaceuticals, dyes, pesticides, catalysts and those high priced compounds requiring uncommon ingredients, specialized manufacturing techniques and technical sales service. One can see growing on the economic horizon great international chemical companies which will develop through the branching out of our great American and European corporations. By the transfer of the scientific and engineering fruits of their laboratories to foreign soils and the use of foreign raw materials and personnel they will extend chemistry's great growth potential in a world-wide movement.

HARSHAW

FLUORIDES



Unloading mineral fluospar which comes to us from various parts of the world.

SILICON TETRAFLUORIDE
ANOTHER FIRST FOR HARSHAW

Harshaw's newest fluoride is silicon tetrafluoride. One of the major oil companies has just developed a process for sealing water out of oil wells during drilling with this newly introduced fluoride.

In 1904 when The Harshaw Chemical Co. first started to manufacture hydrofluoric acid, all of the production was used by foundries to remove sand from iron castings. Today, Harshaw's fluoride division produces 26 different fluoride chemicals for as many industries.

The major uses of Harshaw Fluorides are in the petroleum, glass, steel, and atomic energy industries. Even in these industries the uses are diversified. The versatility of Harshaw fluorides is also evident by their use in soldering fluxes, cleaning boilers, removing iron stains and souring laundry, curing plastics, alloying aluminum, floating minerals, sanitizing breweries, and treating water.

HARSHAW'S MANUFACTURED PRODUCTS INCLUDE:

CATALYSTS
CERAMIC COLORS
DYES & FINE ORGANIC CHEMICALS
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METALLIC SOAPS & SALTS
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PLATING CHEMICALS
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HARSHAW'S 5 MANUFACTURING PLANTS
Cleveland, Ohio • Elyria, Ohio • Gloucester City, N.J.
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A Study of Industrial Common Stock:

Price-Earnings Ratios and Yields

by Dr. Edward D. Zinbarg

THE "PRICE EARNINGS-RATIO" and the "yield" are probably the two most widely used statistical concepts in the field of common stock investment analysis. Yet one searches in vain for a published account of a comprehensive empirical study which attempts to answer so basic a question as: Does past experience suggest the possibility of establishing any operationally useful "norms" for price-earnings ratios and yields? It is hoped that an answer to this question will be found in the investigation to be described in the present article.

Development of the Necessary Data

One of the major obstacles to a proper study of price-earnings ratios and yields has been the absence of adequate data. In 1939, the Cowles Commission for Research in Economics published a comprehensive record of common stock prices, earnings, and dividends for the period 1871 through 1938.[1] Series were computed for 69 industry groups and subgroups. The price indexes have been kept current by the Standard & Poor's Corporation. However, the earnings and dividends series were not kept current. In 1957, Standard & Poor's began to compile industry group earnings and dividends corresponding with their industry group price indexes—but the gap from 1940 through 1956 was not filled.

Most of Cowles' industry groups were of the type referred to as "industrials." There are 39 groups which appear both in the Cowles "industrial" series and in the 1956 Standard & Poor's price indexes.[2] These groups are listed in *Table* 1. For each of the 39 groups the writer has developed earnings and dividends series for the period 1935 through 1956. His statistical techniques are described in a technical appendix at the end of this article. To compare the newly developed earnings and dividends with Cowles', four ratios were calculated for each group: (1 and 2) the new earnings and dividends for 1939 divided by Cowles' 1939 data; (3 and 4) the new *average* earnings and dividends for the years 1935 through 1939 divided by Cowles' *average* data for the same period. These ratios are also presented in *Table* 1.

If it is assumed that Cowles' figures are absolutely accurate, any deviation of the ratios from 100% can be attributed to (1) errors arising from the methodology underlying the newly developed data, or (2) error in computation. If it is further assumed that, in order to "splice" one of the new group earnings and dividends series to the corresponding Cowles group series, three out of four of the ratios for the group may have a maximum allowable "error" of 10%, 22 of the 39 groups qualify. And if the allowable "three out of four margin of error" is raised from 10% to 13%, 26 of the 39 groups qualify. These 26 groups are marked by an "X" in *Table* 1. It is believed that these facts justify the conclusion that the approach to the derivation of group earnings and dividends described in the appendix was a valid and practical one.

DEFINITION OF TERMS

Price-earnings ratios and yields measure the relationships of market values *at any given time, or over any given period of time,* to the earnings and dividends *of any given period of time.* The Cowles Commission's data related each year's average market value to the *same year's* earnings and dividends. No reasons were given for the selection of these time periods, but it may be assumed that the selection was made to conform with the general practice of relating current prices to current earnings and dividends.

In order to determine whether some time periods other than those selected by Cowles might be more useful for analytical purposes, the writer performed an extensive correlation analysis using the prices, earnings, and dividends of the "Industrial Composite" group for the period 1900 through 1956. Average prices for each year were correlated with earnings and dividends of the same year, the previous year, the succeeding year, and various combinations of previous and succeeding years. Two, three, five, and ten-year moving averages of prices were also correlated with similar moving averages of earnings and dividends. In all cases, a simple linear relationship ($Y=a+bX$) was assumed. The nature of the 15 combinations of variables which were analyzed is outlined in *Table* 2. *Table* 3 presents the correlation ratios in order of magnitude.

"Combination a", average annual prices compared with the same year's earnings and dividends, is that used by the Cowles Commission. Its price-earnings and price-dividends correlation ratios are .86 and .93, respectively. The highest correlation ratios are .87 (for

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1. Footnotes appear at end of article.

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Table 1

Comparison of Cowles' Data With Newly Developed Data

		Newly Developed Earnings Divided by Cowles' Earnings		Newly Developed Dividends Divided by Cowles' Dividends	
	Group**	1939	1935-39	1939	1935-39
X	Industrial Composite	106.2%	106.8%	103.0%	103.7%
X	Agricultural Machinery	63.1	100.5	98.2	98.3
	Air Transportation	120.5	81.6	100.0	137.3
	Aircraft Manufacturing	126.9	109.4	43.8	61.4
X	Automobiles	103.3	103.3	100.5	101.1
X	Auto Parts & Accessories	106.7	109.7	99.1	93.7
X	Building Materials Composite	110.3	99.8	91.3	85.6
X	Chemicals	101.3	102.3	93.4	94.8
	Coal—Anthracite	*	*	98.7	95.0
	Coal—Bituminous	14.1	12.5	106.2	86.7
X	Copper	92.3	99.4	97.4	102.6
X	Drugs	91.6	95.3	91.7	98.1
X	Electrical Equipment	108.4	108.0	102.3	104.1
	Fertilizer	*	*	97.2	113.8
X	Foods Composite	114.2	102.3	97.9	101.1
X	Meat Packing	139.7	105.8	100.0	90.6
X	Lead & Zinc	90.6	91.2	89.0	90.2
X	Machinery (ex. agric.) Composite	118.7	104.4	100.7	103.4
X	Mining & Smelting—Misc.	85.8	95.9	111.5	112.6
X	Motion Pictures	147.9	110.3	103.5	95.9
X	Office Equipment	101.3	103.2	100.9	106.5
X	Oil Composite	98.6	99.0	109.9	107.0
	Paper	126.7	*	159.3	157.4
	Printing & Publishing	*	*	188.6	132.3
	Radio & Television Mfg.	117.0	109.3	*	133.3
	Railroad Equipment	138.8	120.3	97.7	84.2
X	Retail Composite	93.9	101.8	99.8	105.9
	Department Stores	87.1	114.0	119.0	130.7
X	5c to $1 Chains	92.0	97.8	100.0	99.2
X	Food Chains	85.1	90.6	108.7	102.3
X	Mail Order Houses	99.0	101.2	86.9	101.7
X	Shoes	107.5	108.5	102.7	102.2
X	Steel	105.8	92.5	145.2	101.2
	Sugar Composite	129.3	119.0	91.5	119.7
X	Textiles—Apparel	95.3	110.8	96.0	109.6
X	Textiles—Rayon	107.3	117.9	98.6	110.6
	Tires & Rubber Goods	83.4	139.0	51.4	81.2
	Tobacco—Cigars	*	168.5	103.6	95.7
X	Tobacco—Cigarettes	105.5	103.5	100.6	99.5

* Over 200%

** Groups for which three out of four ratios fall within a range of 87% to 113% are marked "X".

Table 2

Combinations of Prices, Earnings, and Dividends Employed in Correlation Analysis

Combination	Average Prices of:	Earnings and Dividends of:
a	Current Year	Current Year
b	Current Year	Previous Year
c	Current Year	Succeeding Year
d	Current Year	Current & Previous Year—Average
e	Current Year	Current & Succeeding Year—Average
f	Current Year	Current & Previous 2 Years—Average
g	Current Year	Current & Succeeding 2 Years—Average
h	Current Year	Current, Previous, & Succeeding Years—Average
i	Current Year	Current & Previous 4 Years—Average
j	Current Year	Current & Succeeding 4 Years—Average
k	Current Year	Current, Previous 2, & Succeeding 2 Years—Average
l	2 Successive Years	2 Successive Years—Average
m	3 Successive Years	3 Successive Years—Average
n	5 Successive Years	5 Successive Years—Average
o	10 Successive Years	10 Successive Years—Average

Table 3

Correlation Ratios for Each Combination of Prices, Earnings, and Dividends—Arranged in Order of Magnitude

Combination	Price-Earnings Correlation Ratio	Combination	Price-Dividends Correlation Ratio
d	.8728	o	.9730
i	.8722	n	.9625
f	.8686	m	.9508
l	.8686	l	.9411
m	.8662	e	.9361
n	.8659	h	.9345
a	.8614	a	.9333
h	.8533	d	.9280
o	.8512	k	.9276
e	.8447	g	.9255
b	.8414	c	.9239
k	.8248	f	.9223
c	.8039	i	.9152
g	.8006	b	.9057
j	.7077	j	.8590

"combination d") and .97 (for "combination o"), respectively. The differences of .01 and .04 were not considered to be large enough to justify a departure from the widespread practice of relating the current year's prices to the current year's earnings and dividends when utilizing the concepts of price-earnings ratios and yields.

ANALYSIS OF THE DATA

Experience in Prosperity and Depression

On the basis of the above observations, there is set forth in *Tables* 4 and 5 the median price-earnings ratios and median yields[3] for three selected periods of time for each of 22 of the 26 groups marked by an "X" in *Table* 1. The four excluded groups are: Meat Packing, 5c to $1 (variety store) Chains, Food Chains, and Mail Order Houses. The first is a component of the Foods Composite[4] and the latter three are components of the Retail Composite. To take them into consideration in the analysis which will follow would involve a duplication which might result in misleading conclusions. To an extent, the inclusion of the Industrial Composite also involves duplication because it is composed of all the other groups. But since the duplication is not concentrated in any particular industry—since the Composite is, in fact, representative of all industries—it was considered desirable to include it in the analysis.

The three time periods chosen for analysis are the years 1919-1929, 1930-1939, and 1946-1956. It was felt that these periods are representative of the alternative economic environments within which future investment decisions will probably have to be made. The most recent period, 1946-1956, was cut off with the year 1956 in order that we may be able to examine developments from 1957 to date in light of pre-1957 experience. Space does not permit a discussion of wartime experience.

The median price-earnings ratios and yields in *Tables* 4 and 5 are arranged in order of magnitude ("ranked") from low to high price-earnings ratios and from high to low yields (low to high "price-dividend ratios"). *Table* 6 sets up the data in *Tables* 4 and 5 in frequency distribution form. It indicates a concentration of price-earnings ratios in an area of 7 to 11 during prosperity and 15 to 25 during depression. Yields have tended to concentrate in an area of 5 to 7 percent during prosperity and 3 to 6 percent during depression.

Variation Among Industries

If particular industries had a tendency to consistently sell at relatively high or low price-earnings ratios or yields it would be expected that an analysis of the price-earnings ratio and yield "ranks" in different time periods would produce high coefficients of rank correlation. Actually, a comparison of the 1919-1929 P-E ranks of each industry group with the corresponding 1930-1939 ranks produces a correlation coefficient of .062, and a comparison of the 1919-1929 P-E ranks with the 1946-1956 ranks produces a coefficient of .123. These data indicate that the relative positions of the median price-earnings ratios of the various groups for the three periods of time are about as dissimilar as they could possibly be. The relative positions of the median yields are somewhat more consistent, with correlation coefficients of .511 and .403, respectively, but not significantly so.

To test the possibility that there may be a greater similarity in the relative price-earnings ratio and yield positions if the industries are classified by general type, rather than by specific product, a threefold classification was established as follows (the classification excludes the Industrial Composite):

(1) Heavy Manufacturing - Agricultural Machinery, Automobiles, Auto Parts and Accessories, Building Materials, Chemicals, Electrical Equipment, Machinery (excluding agricultural), Office Equipment, Steel.

(2) Light Manufacturing and Service - Drugs, Foods, Motion Pictures, Retail, Shoes, Textiles - Apparel, Textiles - Rayon, Tobacco-Cigarettes.

(3) Natural Resource - Copper, Lead and Zinc, Mining and Smelting-Misc., Oil.

An attempt was made to determine whether there was any tendency for any of the three types of industry to be more than proportionately represented in the first five or first ten median price-earnings ratio and yield ranks in *Tables* 4 and 5. To do this, the ranks were broken up into "quartiles"—ranks 1-5, 6-10, 11-15, and 16-21. The number of industry groups, classified by type of industry, falling within each range of ranks for each time period was counted. The results are presented in *Table* 7. On the basis of these data, it may be stated that:

(1) During prosperous periods there has been a general tendency for Heavy Manufacturing stocks to

Table 4

Median Price-Earnings Ratios—Arranged in Order of Magnitude

1919-1929

1	Office Equipment	7.3
2	Textiles—Apparel	7.5
3	Motion Pictures	7.6
4	Auto Parts & Accessories	8.4
5	Automobiles	8.7
6	Steel	9.3
7	Lead & Zinc	9.6
8	Shoes*	10.0
9	Electrical Equipment	10.1
10	Foods Composite	10.2
11	Tobacco—Cigarettes	10.5
12	Building Materials Composite	10.7
13	Industrial Composite	10.7
14	Agricultural Machinery	10.8
15	Machinery (ex. agric.) Composite	11.0
16	Chemicals	12.3
17	Drugs	12.4
18	Oil Composite	13.1
19	Retail Composite	13.2
20	Mining & Smelting—Misc.	15.1
21	Copper	15.6
22	Textiles—Rayon**	23.4

1930-1939

1	Motion Pictures	14.0
2	Drugs	14.4
3	Retail Composite	14.9
4	Foods Composite	15.6
5	Auto Parts & Accessories	16.4
6	Tobacco—Cigarettes	16.6
7	Shoes	17.3
8	Office Equipment	17.9
9	Automobiles	19.0
10	Chemicals	19.7
11	Machinery (ex. agric.) Composite	20.8
12	Oil Composite	22.6
13	Industrial Composite	22.9
14	Textiles—Rayon	23.6
15	Agricultural Machinery	24.9
16	Mining & Smelting—Misc.	25.0
17	Copper	26.7
18	Textiles—Apparel	30.0
19	Lead & Zinc	33.3
20	Building Materials Composite	33.8
21	Electrical Equipment	36.1
22	Steel	X

1946-1956

1	Steel	6.2
2	Agricultural Machinery	8.0
3	Auto Parts & Accessories	8.0
4	Oil Composite	8.0
5	Machinery (ex. agric.) Composite	8.1
6	Textiles—Apparel	8.5
7	Copper	8.8
8	Automobiles	9.1
9	Building Materials Composite	9.4
10	Industrial Composite	9.6
11	Foods Composite	10.2
12	Motion Pictures	10.2
13	Mining & Smelting—Misc.	10.3
14	Tobacco—Cigarettes	10.5
15	Electrical Equipment	10.8
16	Lead & Zinc	10.8
17	Textiles—Rayon	10.9
18	Retail Composite	11.6
19	Shoes	12.7
20	Drugs	13.8
21	Office Equipment	15.1
22	Chemicals	18.5

*From 1920 **From 1926 X Cannot be computed.

Table 5

Median Yields—Arranged in Descending Order of Magnitude (%)

1919-1929

1	Tobacco—Cigarettes	7.10
2	Motion Pictures	6.53
3	Lead & Zinc	6.50
4	Auto Parts & Accessories	6.34
5	Automobiles	6.31
6	Copper	6.24
7	Office Equipment	6.16
8	Drugs	5.71
9	Mining & Smelting—Misc.	5.66
10	Textiles—Apparel	5.58
11	Machinery (ex. agric.) Composite	5.55
12	Foods Composite	5.28
13	Industrial Composite	5.24
14	Agricultural Machinery	5.01
15	Steel	4.94
16	Shoes*	4.86
17	Chemicals	4.84
18	Electrical Equipment	4.57
19	Building Materials Composite	4.51
20	Oil Composite	4.04
21	Retail Composite	2.96
22	Textiles—Rayon**	0.63

1930-1939

1	Automobiles	6.87
2	Tobacco—Cigarettes	6.16
3	Auto Parts & Accessories	5.64
4	Drugs	5.47
5	Foods Composite	5.46
6	Shoes	5.35
7	Retail Composite	5.03
8	Textiles—Apparel	4.90
9	Machinery (ex. agric.) Composite	4.52
10	Motion Pictures	4.48
11	Industrial Composite	4.36
12	Lead & Zinc	4.22
13	Chemicals	3.97
14	Office Equipment	3.85
15	Oil Composite	3.66
16	Building Materials Composite	3.54
17	Copper	3.28
18	Mining & Smelting—Misc.	3.13
19	Electrical Equipment	3.06
20	Agricultural Machinery	2.82
21	Textiles—Rayon	2.35
22	Steel	1.46

1946-1956

1	Copper	7.95
2	Steel	7.13
3	Automobiles	6.97
4	Textiles—Apparel	6.72
5	Auto Parts & Accessories	6.54
6	Machinery (ex. agric.) Composite	6.47
7	Motion Pictures	6.42
8	Building Materials Composite	6.15
9	Agricultural Machinery	6.09
10	Lead & Zinc	6.02
11	Mining & Smelting—Misc.	6.00
12	Tobacco—Cigarettes	5.98
13	Shoes	5.92
14	Foods Composite	5.63
15	Industrial Composite	5.54
16	Retail Composite	5.35
17	Oil Composite	5.12
18	Textiles—Rayon	5.08
19	Electrical Equipment	4.90
20	Drugs	4.28
21	Chemicals	3.75
22	Office Equipment	3.36

*From 1920 **From 1926.

Table 6

Summary of Tables 4 and 5

Range of Price-Earnings Ratios	1919-1929	1930-1939	1946-1956
Under 7.0	0		1
7.0- 8.9	5		6
9.0-10.9	9		10
11.0-12.9	3		2
13.0-14.9	2	3	1
15.0-19.9	2	7	2
20.0-24.9	1	5	0
25.0-29.9	0	2	0
30.0-34.9	0	3	0
35.0 and Over	0	2	0

Range of Yields (%)	1919-1929	1930-1939	1946-1956
Over 7.0	1	0	2
6.01-7.0	6	2	9
5.01-6.0	7	5	7
4.01-5.0	6	5	2
3.01-4.0	0	7	2
2.01-3.0	1	2	0
2.00 and Under	1	1	0

sell in the lower ranges of price-earnings ratios and for Light Manufacturing, Service, and Natural Resource stocks to sell at comparatively higher ratios.

(2) Light Manufacturing and Service industries tend to be associated with relatively low price-earnings ratios during depression. However, this is probably more a matter of arithmetic than economics, since the light industry group consists of consumer-goods industries, the earnings of which tend to hold up fairly well in comparison with heavy manufacturing and natural resource industries during depressions.

(3) Because of varying dividend payout ratios, no clear pattern emerges with regard to yields. If payout ratios were relatively similar, however, a tendency toward high (or low) price-earnings ratios would be associated with a tendency toward low (or high) yields.

Table 7

Distribution of Price-Earnings Ratio and Yield Ranks by Type of Industry

Ranges of Price-Earnings Ratio and Yield Ranks	No. Heavy Mfg.			No. Light Mfg. & Service			No. Natural Resource		
	'19-29	'30-39	'46-56	'19-29	'30-39	'46-56	'19-29	'30-39	'46-56
P-E Ranks:									
1 - 5	3	1	4	2	4	0	0	0	1
6 - 10	2	3	2	2	2	2	1	0	1
11 - 15	4	2	1	1	1	2	0	2	2
16 - 21	0	3	2	3	1	4	3	2	0
Yield Ranks:									
1 - 5	2	2	3	2	3	1	1	0	1
6 - 10	1	1	3	2	4	1	2	0	1
11 - 15	3	3	0	2	0	4	0	2	1
16 - 21	3	3	3	2	1	2	1	2	1

Range About Median Price-Earnings Ratios and Yields

Thus far we have been discussing the "central tendency", as measured by medians, of the various group price-earnings ratios and yields. The discussion would be incomplete if it were not accompanied by a consideration of "dispersion", that is, the range of variation of the annual data about their medians. It was decided for the purposes of this study not to use a mathematically derived measure, such as the "standard deviation", because the influence of extreme values would produce misleading conclusions. The measure chosen was the third highest and third lowest annual price-earnings ratio and yield of each group for each time period under consideration.

The group "highs" and "lows" were expressed as percentages of the group median values. *Table* 8 presents frequency distributions of these percentages (the price-earnings ratio range for the period 1930-1939 was omitted because the presence of extremes is too concentrated to permit meaningful computations). On the basis of these data, the conclusion seems warranted that the range around median price-earnings ratios and yields has consistently tended to be plus-or-minus 40%. The only significant exceptions were the high price-earnings ratios of 1919-1929. In that period price-earnings ratios often rose to 60% above the median.

Table 8

Dispersion of Price-Earnings Ratios and Yields

Range of Percentages of "Highs" and "Lows" to Median Values	Price-Earnings Ratios		Yields		
	1919-1929	1946-1956	1919-1929	1930-1939	1946-1956
Highs:					
101-120%	1	11	13	10	17
121-140	9	8	7	6	5
141-160	9	2	1	3	0
Over 160%	3	1	1	3	0
Lows:					
80-99%	8	9	12	11	15
60-79	13	12	9	8	7
Under 60%	1	1	1	3	0

Before concluding this section on dispersion, it should be noted that a most important aspect of the problem has not been covered, namely, the history of price-earnings ratios and yields during the turning points of business and market cycles. Adequate coverage of this subject requires that quarterly earnings and dividends be available for comparison with weekly or monthly price movements. A comparison of short-term price movements with annual earnings and dividends would, in essence, be a study of the movement of prices rather than price-earnings ratios and yields. Since quarterly earnings and dividends are not available at this writing, and since a study of price movements alone is outside the scope of this article, the subject will not be considered further.

Analysis of Factors Reputed to Influence Price-Earnings Ratios and Yields

Evidence was developed in the previous few sections of considerable uniformity of price-earnings ratios and yields among different industries. On the other hand, there was evidence of some variation. An examination of almost any textbook on investments will produce several possible "explanations" of differing price-earnings ratios and yields among different companies and/or industries operating within the same overall economic environment. The data developed in this study provide the basis for an investigation of three such "explanations." They are: (1) differences in *growth* of earnings and dividends; (2) differences in *stability* of earnings and dividends; and (3) differences in percentage of earnings paid out as dividends. There is not sufficient space to present the detailed statistics, but a summary of the procedures and findings is in order.

(1) Growth rates of earnings and dividends were computed for each of the 22 industry groups for each of the three time periods under study.[5] For each time period the ranks of each industry's earnings growth rates were correlated with the corresponding ranks of both the price-earnings ratios and yields. The same procedure was followed with the dividend growth rates. Thus, 12 coefficients of rank correlation were computed. Of these, 10 fell within a range of −.25 and +.36, one was .56, and one was .78. On the basis of these data, it can be stated that there has been no apparent historic relation between the realized growth rates of earnings and dividends and the level of price-earnings ratios and yields.

Theoretically, it is possible to conceive of a situation where the earnings of two different industries have an identical growth rate, but where the earnings of one show a greater degree of scatter about the growth trend line than the other. The degree of scatter about the trend line may, for convenience, be referred to as the "persistence" of growth. It may be argued that this *persistence* of growth is at least as important a determinant of price-earnings ratios and yields as is the absolute *rate* of growth. The coefficients of correlation of the growth trend lines which were fitted to the earnings and dividends have been used as a measure of what is here being called "persistence of growth."

Correlation of *persistence* of growth with *rate* of growth produced high enough coefficients (.69, .75, .80, .85, .86, and .87) to suggest that, since there is no statistical relation between rate of growth and the level of price-earnings ratios and yields, there is also little or no relation between persistence of growth and the level of price-earnings ratios and yields.

(2) The most appropriate measure of the comparative stability of several numerical series is the coefficient of variation—the ratio obtained by dividing the standard deviation of each series by the arithmetic mean of the series. Coefficients of variation of earnings and dividends were computed for each of the industry groups for each of the time periods, and a rank correlation analysis was performed, using these coefficients and the median price-earnings ratios and yields as the variables. The 12 correlation coefficients which were computed fall within a range of −.49 and +.48. As was the case with growth, there is no apparent statistical relation between the stability of earnings and dividends and the level of price-earnings ratios and yields.

(3) The measure of "dividend payout" used in the analysis was the sum of the dividends paid during each time period, divided by the sum of the earnings during the same period. Rank correlation of the dividend payout ratios with the median price-earnings ratios and yields produced six coefficients ranging from −.56 to +.44. Four of the six fall within a range of −.09 and +.25. This evidence suggests that there is no significant historic relation between dividend payout and the level of price-earnings ratios and yields.

(4) Time was not available to undertake a comprehensive *multiple* correlation analysis. However, as an indication of the possible nature of the results, one set of simultaneous equations was solved. The period chosen for analysis was 1946-1956. The dependent variable was the price-earnings ratio. The independent variables were (1) earnings growth rate, (2) earnings growth "persistence", (3) stability of earnings, and (4) dividend payout ratio. A "straight line" was fitted to the data for each of the 22 groups, and a correlation ratio of .613 resulted. This ratio is not high enough to alter the implications drawn from the rank correlation analysis, but it is high enough to suggest that future students of the subject may be well rewarded by pursuing the multiple correlation analysis further.

SUMMARY OF THE FINDINGS

Evidence has been presented to the effect that:

(1) Average annual prices vary rather closely with current earnings and dividends.

(2) With a few exceptions, the price-earnings ratios and yields of all industrial stocks tend, in the long run, to be concentrated in a narrow range.

(3) Average price-earnings ratios and yields for any given year are usually not more than 40% above or below average price-earnings ratios and yields for a ten-year period of similar overall economic conditions.

(4) There is no apparent historic relation between the level of price-earnings ratios and yields and either (a) realized growth rates of earnings and dividends, (b) persistence of growth of earnings and dividends, (c) stability of earnings and dividends, or (d) dividend payout ratio.[6]

If the data developed in this study are accurate, and representative of the totality of common stock investment experience; *and if the experience of the past is believed to be indicative of conditions at present and in the foreseeable future,* the following, admittedly bold, hypotheses are suggested:

(1) The normal market price of a heavy manufacturing common stock, in generally prosperous periods,

is equal to approximately 9 times current earnings, and produces a current yield of approximately 6%. The normal price of a light manufacturing, service, or natural resource stock, during prosperity, is equal to approximately 11 times current earnings, and produces a current yield of approximately 5%. The normal price of "the market" in generally prosperous periods is equal to about 10 times current earnings, and produces a current yield of about 5.5%.

(2) During a depression, stocks of companies which suffer a severe decline in earnings sell at a normal price of approximately 25 times current earnings, to yield approximately 3%. Stocks of companies whose earnings fare relatively better sell at a normal price of about 15 times current earnings, to yield about 5%. The normal price multiples for "the market" in depression, as in prosperity, stand midway between the extremes.

(3) Empirical research reveals particular industries, such as chemicals and drugs, whose normal price multiples have always tended to deviate from those stated above. In these cases, detailed analysis indicates more appropriate normal multiples.[7]

(4) In all cases, it can be expected that prices will fluctuate within a band of 60-140% of normal.

Developments Since 1956

If the 1957 price-earnings ratio and yield (based on average prices) of each group is compared with that group's "prosperity normal" price-earnings ratio and yield, as defined above,[8] the results may be summarized as follows:

	Number of Groups Falling Within Stated Range:	
Percent of Normal	Price-Earnings Ratios	Yields
Under 60%		2
60 - 80		3
81 - 100	3	8
101 - 120	9	6
121 - 140	7	3
Over 140%	3	

It will be observed that only 3 of the 22 group price-earnings ratios and only 2 of the group yields fell outside the expectable range of plus-or-minus 40% of "normal".

If the 1958 yield of each group is compared with its "prosperity normal", 19 of the 22 group yields fall within their expectable range. This is not true of the majority of 1958 group price-earnings ratios. But the point might be made that 1958 earnings were far below anything which is to be expected in a prosperous period, and that a "depression normal" is a more appropriate comparison. Rather than debate the issue, the writer has chosen to compute 1958 price-earnings ratios and yields on the basis of 1958 average prices and 1957 earnings and dividends, and to compare these figures with "prosperity norms." The results of this comparison are summarized above. It will be observed that only 5 of the 22 group price-earnings ratios and only 3 of the group yields fell outside their expectable range.

	Number of Groups Falling Within Stated Range:	
Percent of Normal	Price-Earnings Ratios	Yields
Under 60%		2
60 - 80		6
81 - 100	2	6
101 - 120	9	5
121 - 140	6	2
Over 140%	5	1

Implications of the Findings

Unless we have entered a truly "New Era"—one in which the past is not indicative of the future—the findings reported in this article suggest that common stock investment analysts have two principal functions. The first of these functions is to estimate future "normal market prices." Essentially, this function involves the refinement of techniques for projecting earnings and dividends, for it appears that at any given time, normal price is equal to the then current earnings or dividends multiplied by a fixed sum. Normal price, in other words, is a direct function of earnings and dividends, and changes as earnings and dividends change.

The second major function of the analyst is to develop a systematic explanation of the plus-or-minus 40% swings around normal. For, once having forecast a future normal price, if he is able to forecast the percent of normal which is likely to prevail at any given time, he can forecast future prices. And if he can forecast future prices in this manner, he can predetermine the dividend income and capital gain which are likely to flow from a common stock investment.

TECHNICAL APPENDIX

In order to bring Cowles' data up-to-date, one should, ideally, first record the earnings, dividends, and market values of all of the stocks included in the Standard & Poor's price indexes during the period 1940 through 1956. This is an enormous task for any one individual. During the 17-year period, the 62 Cowles "industrial" groups were expanded to 86 groups through a continuous process of adding new groups, breaking up main groups into subgroups, and deleting "obsolete" groups. The same process of addition and deletion changed the number of companies covered from 350 to 420. Nevertheless, enough similarity exists between the composition of the price indexes at the beginning of 1940 and at the end of 1956 to suggest an alternative procedure.

For each of the companies included in the Standard & Poor's "industrial" price indexes *at the end of* 1956, the writer compiled a record of earnings, dividends, and year-end market values (using the last Wednesday of each year to conform with S & P's practice) *for each year from* 1935 *through* 1956. Summations of these data were made on a group basis. Group earnings and dividends were divided by group year-end market values to obtain group year-end "earnings-price ratios" and "yields". A key assumption was then made, namely, that if similar figures had been compiled for the stocks *actually* included in the Standard & Poor's price indexes at the end of *each* year, instead of for the stocks included only at the end of 1956, the resultant year-end "earnings-price ratios" and "yields" would have been *identical*. Although this assumption was not entirely realistic, it was operationally useful, for it made possible the multiplication of each group's year-end "earnings-price ratios" and "yields" by each group's year-end price index numbers. This procedure resulted in 86 22-year series of "earnings and dividends per group share", 39 of which could be compared with their Cowles counterparts for the period 1935-1939. This comparison is made in the main body of the text.

FOOTNOTES

1. Alfred Cowles, 3rd, & Associates, "Common-Stock Indexes" (Principia Press, Inc., Bloomington, Indiana, 1939), Second Edition. A mimeographed supplement was issued in March, 1941, to bring the date through 1939.

2. If "Automobiles, excluding General Motors" and "Steel, excluding U. S. Steel" were taken into consideration, there would be 41 groups appearing in both.

3. The choice of the median in preference to the arithmetic mean as the most appropriate measure of central tendency was based primarily on the fact that when operations result in deficits or near-deficits, the price-earnings ratios reach or approach infinity. The median is not affected by extreme values as is the mean, and is therefore more likely to be "typical" of a series of price-earnings ratios. Consistency demanded that the median be used in analyzing the yields as well as the price-earnings ratios.

4. It should be noted that Meat Packing has been included in the Foods Composite only since 1939. Cowles' Foods Composite excluded Meat Packers.

5. Because of the presence of negative numbers (deficits), the usual technique for measuring rates of growth, namely solving for "b" in the equation $Y = a\ (1 + b)^X$, could not be employed. The approach chosen was to fit straight lines to the data and define the growth rate as the ratio of the slope to the mid-value, or b/a in the equation $Y = a + bX$. Tests indicated that this was a satisfactory technique.

6. A recent study by Sidney Cottle and Tate Whitman, "Corporate Earning Power and Market Valuation," 1935-1955 (Duke University Press, Durham, N. C., 1959), indicates that there is also little or no relation between the level of price-earnings ratios and the rate of return on invested capital. These authors do, however, find some relation between p-e ratios and (a) stability of rate of return on invested capital, and (b) dividend payout ratio.

7. Future students are urged to undertake an extensive analysis of the price-earnings ratios and yields of individual companies which will supplement the present analysis of industry data.

8. Since Chemicals and Drugs are typically "abnormal" groups, their "normal" price-earnings ratios and yields, for purposes of this comparison, were assumed to be equal to their own median values for the period 1946-1956. See Tables 4 and 5 for these values.

This announcement is neither an offer to sell nor a solicitation of an offer to buy these securities.
The offer is made only by the Prospectus.

$46,971,000

Pan American World Airways, Inc.

4⅞% Convertible Subordinated Debentures
Due August 1, 1979

Convertible into Capital Stock at $30 per Share

The Debentures are being offered by the Company to holders of its Capital Stock for subscription, subject to the terms and conditions set forth in the Prospectus. The subscription offer will expire at 3:30 P.M., E.D.S.T., on August 12, 1959. The several Underwriters may offer Debentures pursuant to the terms and conditions set forth in the Prospectus.

Subscription Price 100%

Copies of the Prospectus may be obtained in any State only from such of the several Underwriters, including the undersigned, as may lawfully offer these securities in such State.

Lehman Brothers
Hornblower & Weeks
Blyth & Co., Inc.
The First Boston Corporation
Eastman Dillon, Union Securities & Co.
Glore, Forgan & Co.
Goldman, Sachs & Co.
Harriman Ripley & Co. Incorporated
Kidder, Peabody & Co. Incorporated
Lazard Frères & Co.
Merrill Lynch, Pierce, Fenner & Smith Incorporated
Smith, Barney & Co.
Stone & Webster Securities Corporation
White, Weld & Co.
Dean Witter & Co.

July 30, 1959.

DREWRYS

A quarterly dividend of forty (40) cents per share for the third quarter of 1959 has been declared on the common stock, payable September 10, 1959 to stockholders of record at the close of business on August 24, 1959.

Drewrys Limited U. S. A. Inc.
South Bend, Indiana
T. E. JEANNERET,
Secretary and Treasurer

Harbison-Walker Refractories Company

Board of Directors has declared for quarter ending September 30, 1959 DIVIDEND of ONE and ONE-HALF (1½%) PER CENT or $1.50 per share on PREFERRED STOCK, payable October 20, 1959 to shareholders of record October 6, 1959.
Also declared a DIVIDEND of $.45 per share on COMMON STOCK, payable September 1, 1959 to shareholders of record August 11, 1959.

G. F. Cronmiller, Jr.
Vice President and Secretary

Pittsburgh, July 30, 1959

At New York's International Airport the world's tallest control tower features PPG **Solex**® and **Spandrelite**® glass. The Boeing 707 on the flight apron has special PPG **Nesa Flexseal**® windshields, layers of PPG Fiber Glass insulation.

PPG products help put America up front in the jet age

Modern air terminals in New York, St. Louis, Dallas and other cities owe much of their beauty to structural glass made by Pittsburgh Plate Glass Company. At International Airport architects made even the heating plant an attractive design element, through the use of bright, colorful *Pittsburgh Paints.*®

In America's first jetliner, the Boeing 707, passengers are comfortable, even at altitudes where the temperature drops to 70 below, protected from the cold by thick layers of PPG Fiber Glass. Flight at such altitudes is safer, too, because of *Nesa Flexseal* windshields developed by PPG. They're three times stronger than ordinary windshields, and they conduct electricity to defrost ice and prevent fogging. Commercial and military jets fly on fuels processed with chemicals from PPG's subsidiary, Columbia-Southern.

In planes, trains, autos, busses and ships—in airports, homes, schools, factories and stores—in metals, food, rubber and textiles, one or more of the basic materials is almost always a PPG product.

PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS • FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

and its wholly-owned subsidiary COLUMBIA-SOUTHERN CHEMICAL CORPORATION

Gulf has addressed this series to those who write and edit the news.
It is reprinted here as part of Gulf's public information program.

GULF PRESS CONFERENCE 2

A service of Gulf Oil Corporation in the cause of creating—through the facts as we see them—a fuller understanding of the oil industry.

Oil-hungry America, 1959

Oil is a huge business. It must be to meet America's appetite for oil. Yet as swiftly as this appetite has grown since Colonel Edwin L. Drake brought in the first well 100 years ago—as enormous as it is—it emerges more unknown than understood. These days, how much oil is enough?

Q. Perhaps we should first ask this: how much oil do we really have today?

A. Let's start with Colonel Drake as a reference point. In 1859, he coaxed 2,000 barrels of oil from the ground. Last year, America's total flow was 2,450,000,000 barrels. And the world's known proven reserves were estimated at 252,000,000,000 barrels.

Q. That sounds like enough oil to keep us running for quite a long while.

A. Not very long. If you limit the reserves to those in America alone, the best experts say that they offer us less than a dozen years' supply.

Q. That brings us to our appetite for oil. Just how big is it?

A. To begin with, we really have more than one appetite. There is our need for oil as energy. There are our consumer product needs. And not least, our national defense needs.

Q. How importantly does oil figure in our energy requirements these days?

A. You can accurately call oil the economy's number one energy food. A century ago, we did 94% of our work with muscle power. Today, in exact reverse, fuel energies account for 94%. And over the 100 years, the share of these energies supplied by oil and gas has climbed to 72%. It is still climbing.

Q. To bring this job down to cases, what of oil in industry?

A. For one thing, our industrial output as measured in gross national product has increased by 2,253% in this century. And oil has played a key part not only in moving industry's wheels, but also in lubricating them. Oil heats some 700,000 factories—some 9,000,000 private homes as well.

Q. Let's turn to our transportation needs. What is oil's role in supplying energy here?

A. At last count, we had 56,000,000 cars and 11,000,000 trucks and buses on our roads. They were using gasoline at the rate of 53,000,000,000 gallons a year. Add to these 17,923 oil-powered ships and 28,331 diesel locomotives.

Q. You mentioned our appetite for consumer products. Is this, strictly speaking, an oil appetite?

A. You judge. Oil is an essential ingredient in over 2,500 things we use every day. The list grows too fast to keep count.

Q. What are some of the items we would find on this list?

A. One example is the insecticides we are using in almost three times the quantity we did ten years ago. There is the asphalt we use on 80% of our paved roads and will use on many of the 85,000 miles of new roadway we'll be needing soon.

Q. Don't a good many of these products come even closer to home than this?

A. Oil lubricates from 25 to 30 electric motors in today's typical home. And beyond that, you may wash, shave and comb wholly with oil-derived products. Oil probably helped produce, transport and cook your last meal. Oil not only moves your car—it makes possible its tires, upholstery, glass, paint.

Q. That leaves national defense. Isn't this appetite for oil a pretty obvious one?

A. Perhaps. But not so its extent. In World War I, more than half the supplies our overseas troops asked for and got were oil supplies. The figure often ran to 80%. And since then, our wars and war machinery have greatly increased that appetite.

Q. Can you somehow put our defense needs today into more specific terms?

A. As just one example, it takes five big 5,000-gallon tanker trucks to fill up the tanks of one of our big jet bombers.

Q. Taking our total appetite, what can we expect will happen to it from here?

A. You can safely say an oil-hungry America is getting even hungrier. In the next 10 years alone, we estimate our oil needs will rise by 40%.

We cordially welcome further questions and comment. Please address them to Gulf Oil Corp., Room 1300, Gulf Bldg., Pittsburgh 30, Pa.

Natural Resource Stocks as an Inflation Hedge

by A. Vernon Woodworth, Jr.

DURING THE PAST FEW YEARS the investing public appears more and more to have accepted the idea that common stocks are a hedge against inflation. After all, we have had more or less steady inflation since World War II and stock market prices during the same period —with only brief setbacks—have moved forward with constantly renewed vigor.

Life insurance companies, savings banks in some states, pension funds, state retirement funds, plus several million private individuals, are all recent converts to the stock market with inflation (among other things) in mind. The theory will very possibly soon hit a new high in respectability when Prudential Insurance Co. and others launch into full scale promotion of variable annuities "designed," according to a recent newspaper article, "to protect the holder against inflation and lowered purchasing power of the dollar, on the theory that stock prices will move up or down in fairly close relation to living costs."

There has been very little written, on the other hand, to show a cause and effect relationship between inflation and the bull market. Perhaps there isn't much to write.

If inflation is to benefit a common stock, other than psychologically, it must somehow or other favorably affect profits of the company involved. There are only two ways by which this can happen. The first is to assume that inflation causes prosperity (the more inflation the more prosperity) and therefore, profits. Practically no believer in private capital would support such an argument.

The second way would attribute to the company a constant increment of extra profit resulting from the gradually increasing dollar value of fixed assets and inventory. There are not many industries where fixed assets and depreciation cost make that much difference. And there aren't many industries which do or are able to hold inventory more than the few months necessary for processing and sale.

Exceptional in this respect are mining, oil and paper companies which own raw material sufficient to last many years. Since raw material—at least in theory—should appreciate in dollar value along with general inflation, it logically follows that companies owning such should reap therefrom a constant harvest of extra incremental profit per unit of production, representing the difference between raw material acquisition cost at a low price and its inflated value many years later at time of use.

Inflation has been with us for a long enough time now so that its results on our "natural resource stocks" should be very apparent. The record indicates strongly that the inflation hedge theory isn't working out except possibly in the minds of some misguided investors.

COPPER

The price of copper is now almost 50% over the average price that prevailed in the 1947-49 period. This is double the increase in the Bureau of Labor Cost of Living Index over the same period. However, increased costs and taxes have eaten up practically all the increment profit that should have resulted as is indicated below:

	Earned Per Share		Net Profit per Ton Produced	
	1947-49 Average	Current	1947-49 Average	Current
Anaconda	$4.77	$5.25	$126	$110
Kennecott	7.20	8.75	180	180
Phelps Dodge	4.30	5.25	188	192

The future most probably will offer further deterioration in profit per ton. Adequate world mining capacity for any conceivable near term demand is or shortly will be in existence. And the profit picture for our three major producers is further clouded by the fact that more and more of their production is located in foreign countries where the value of their assets (as an inflation hedge, if any) is complicated by factors of Latin American or African politics.

Copper stocks have advanced in price over the past decade but less than the Dow-Jones Average. However, they are today as inflated as the general market in terms of expanded price-earnings ratio and reduced yield.

NICKEL

Since 1947-49 the price of nickel has doubled from 37 to 74c per lb. while the cost of living has increased only 24%. Price throughout the period has been controlled by International Nickel Co. of Canada.

Because of by-product complications, particularly copper, it is impossible to determine the extent to which International's improved earning power is attributable to the increased price of nickel. For an estimate, it appears not unreasonable to assume that International's copper operation, standing alone, would produce about the same profit as 10 years ago and that other metals

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A. Vernon Woodworth, Jr. is investment counsel for Hale and Door, counsellors at law, Boston. Hale and Door control large trusts and agency funds. Mr. Woodworth is a graduate of Harvard University and the Harvard Business School.

COMPANIES OWNING LARGE NATURAL RESOURCES

	MARKET		PRICE EARNINGS RATIO			YIELD		
	1947-1949 Avg.	June 19 1959	1947-1949	Current	Change	1947-1949	Current	Change
Dow-Jones Industrial Avg.	180	630	9.0	18.0	+100%	4.7%	3.2%	-32%
COPPER								
Anaconda	32	64	6.7	12.2		9.3%	3.9%	
Kennecott	49	105	6.8	12.0		8.8%	5.7%	
Phelps Dodge	23	61	5.4	11.6		9.6%	5.8%	
Average			6.3	11.8	+ 87%	9.2%	5.1%	-45%
NICKEL								
International	30	96	13.4	19.3	+ 45%	6.7%	3.4%	-50%
SULPHUR								
Texas Gulf	20	21	11.0	13.4	+ 22%	8.0%	4.8%	-40%
TIMBER								
Crown Zellerbach	9	53	4.1	19.0		7.5%	3.5%	
Weyerhauser	8	45	7.2	25.0		4.9%	2.2%	
Internat'l Paper	12	117	2.5	20.0		12.0%	2.5%	
St. Regis	9	45	4.3	16.8		6.1%	3.0%	
Average			4.5	20.2	+350%	7.6%	2.8%	-63%
OIL								
Amerada	25	87	9.2	20.2		4.7%	2.3%	
Atlantic	14	44	4.6	9.3		4.3%	4.6%	
Continental	14	53	6.6	19.5		6.0%	3.0%	
Pure	15	40	4.5	10.3		6.3%	4.0%	
Shell	15	80	5.5	15.9		7.7%	2.5%	
Sinclair	20	59	6.8	14.0		8.7%	5.1%	
Standard of Ind.	20	46	5.5	11.8		6.0%	4.5%	
Kern County	22	52	8.0	14.4		9.0%	4.3%	
Average			6.3	14.4	+130%	6.6%	3.8%	-43%

are of negligible importance, under which assumption all earnings improvements would be attributable to nickel as follows:

	Earnings per Share	Nickel Production
Current Rate	$5.00	260 million lbs.
1947-49 Average	2.26	215 " "
Increase	2.74	45 or 21%
Less 21% attributable to increased volume	.57	
Earnings increase due to higher price	$2.17 or 79%	

In short, it looks as if nickel so far has been an inflation hedge. However, important new nickel productive capacity is being developed, and by the end of 1961 free world potential output will be far above any consumption achieved so far. The market has recognized the threat to nickel prices, and International stock, selling well below highs reached in 1956 and 1957, has turned in over the 10 year period a performance inferior to the Dow-Jones Average.

SULPHUR

During the post-war years the price of sulphur increased from $18 per ton to $26.50 and then declined to $23.50 for a net gain of 30%—only slightly more than the increase in cost of living over the period.

Bellwether of the industry is still Texas Gulf whose record is summarized below:

	1947-49 Average	1959 Estimate
Tonnage	2.7 million	2.9 million
Profits	$23 million	$18 million
Profit per Ton	$8.50	$6.20

In the predictable future ample supply and more competition than in the past is indicated. Freeport Sulphur is developing major new capacity; large Mexican deposits can easily be exploited; and new methods of extracting sulphur as a by-product of various chemical processes are gradually coming along. As a result of its poor record and prospects, Texas Gulf stock is back where it was 10 years ago.

TIMBER

The Department of Labor Index of Wholesale Lumber Price rose to a high of 131 in April 1956, then declined to 116 in April 1958 and now stands at 125. The net increase since 1947-49, therefore, almost exactly matches the increase in cost-of-living. It is apparent that no particular inflationary profit has accrued to timberland owners during the period.

	Average per Share 1947-1949	Average per Share 1958-1959
International Paper	$4.70	$5.74
Weyerhauser	1.11	1.85
Crown Zellerbach	2.20	2.50
St. Regis	2.05	2.61
West Virginia	2.40	2.06

Even so, the timber owning paper stocks have been among the most spectacular market performers over the period, not merely in terms of dollars rise, but more obviously in terms of lengthened price x earnings and reduced yield. Considering the very small earnings improvement, that in fact has taken place, it looks suspiciously as if the market was attributing to these stocks an inflation hedge premium which, so far, they have done nothing to deserve.

OIL

The most disappointing inflation hedge raw material of all has probably been oil. In spite of the fact that discovery cost has doubled, average domestic price of crude at the well head has increased from $2.57 per barrel in 1948 to $2.97 currently, or only 15%.

Even so, the apparent asset bargain available in oil stocks has been irresistible and remains tempting. Blue chips, like Shell and Continental, can be bought for the replacement value of their known domestic reserves alone, with all other assets, including gas thrown, in for nothing. Atlantic and Pure can be bought for half the replacement value of their oil reserves.

Oil stocks during most of the past decade have been market favorites and, until recently, most of them outpaced the Dow-Jones Average. At today's somewhat deflated levels they still stand at a price times earnings and yield basis far out of line with historical criteria. The indication is strong that the market persists in the mistaken idea that oil is an inflation hedge. The small earnings improvement, shown below, for a fair sample of domestic companies—in spite of vast sums spent on all phases of the business—should be all that is needed to prove the contrary.

	Earnings per Share 1948-49 Average	Earnings per Share 1958-59 Average
Amerada	$2.93	$3.90
Atlantic	3.08	4.18
Continental	2.34	2.55
Pure	4.03	3.62
Shell	3.20	4.40
Sinclair	5.64	3.75
Standard of Ind.	3.97	3.77
Kern County	2.97	3.25

Pullman Incorporated

— 392nd Dividend —
93rd Consecutive Year of Quarterly Cash Dividends

A quarterly dividend of seventy-five cents (75¢) per share will be paid on September 14, 1959, to stockholders of record August 21, 1959.

CHAMP CARRY
President

TRAILMOBILE

FLINTKOTE

Manufacturer of the Broadest Line of Building Products in America

THE FLINTKOTE COMPANY
New York 20, N. Y.

quarterly dividends
have been declared as follows:

Common Stock*
45 cents per share

$4 Cumulative Preferred Stock
$1 per share

$4.50 Series A Convertible Second Preferred Stock
$1.12½ per share

These dividends are payable September 15, 1959 to stockholders of record at the close of business August 20, 1959.

JAMES E. McCAULEY
Treasurer

August 5, 1959.

*124th consecutive dividend

Allied Chemical Corporation

DIVIDEND

Quarterly dividend No. 154 of $.75 per share has been declared on the Common Stock, payable September 10, 1959, to stockholders of record August 14, 1959.

RICHARD F. HANSEN
Secretary

July 30, 1959

Continuous Cash Dividends Have Been Paid Since Organization in 1920

TEXAS EASTERN

Transmission Corporation

HOUSTON, TEXAS – SHREVEPORT, LOUISIANA

This, too, is Texas Eastern

The system that keeps on growing... year after year

In 12 years, Texas Eastern's pipeline system has grown from 3182 miles to approximately 8000 miles . . . and from one system to two — one delivering natural gas and the other petroleum products.

The natural gas transmission system, alone, includes over 6100 miles of pipe, spans 15 states between Mexico and New York and delivers more than 600 billion cubic feet of gas a year for use in countless homes and industries . . . with the number constantly increasing.

Our second pipeline unit, the Little Big Inch Division, includes over 1800 miles of pipe, and is, today, one of the nation's largest and most important petroleum products transportation facilities. The Little Big Inch system serves as a vital link between refineries of the Gulf Coast and Mid-Continent areas and the vast markets of the Midwest — transporting the full range of clean petroleum products: gasolines . . . jet and diesel fuels . . . heating oils . . . and — of ever-increasing importance — liquefied petroleum gases (propanes and butanes).

Truly, ours is a growing pipeline system — growing in length . . . in volume and variety of services . . . and in value to the nation as a versatile transporter of natural gas and petroleum products.

TEXAS EASTERN
TRANSMISSION CORPORATION

PRODUCERS • PROCESSORS • TRANSPORTERS
Natural Gas • Crude Oil • Petroleum Products

The Story of Money

The story of money dates back almost as far as man himself. It began when man learned that he could trade things he had for things he wanted. Difficulties were met, however, because there was no common standard of value. A fisherman, for example, couldn't get much wheat from a farmer who didn't like fish.

Before long man learned to set up standards—beads, shells, stones, furs, fish hooks, grain and cattle, to name only a few. All have been given a turn as money from time to time.

Coins Come Into Being

When mankind learned that money was more generally acceptable if it was durable and easy to carry, metal money began to gain favor. Our earliest record of this type of money dates back to 2500 B.C., when the Egyptians produced rings that were used for exchange.

Cubes of gold became money in China about 400 years later. The first metal coins were made in Asia Minor, about 700 B.C., by the Lydians. These coins, struck from an alloy of gold and silver called electrum, were bean-shaped and were stamped with rough impressions.

The Greeks and the Romans contributed much to the art of coinage. Some of the most beautiful coins ever produced were made by the Greeks during their Golden Age—400 to 300 B.C. As time went on, coins became the favored medium of exchange the world over.

Paper Money

The origins of paper money probably go back to the clay tablets of Babylon, about 2500 B.C. On these tablets were written due bills, receipts and the like. Marco Polo, returning from his 13th century voyage to China, reported that paper money was in use there. He also reported that Emperor Kubla Khan, in 1273 A.D., issued notes printed on mulberry bark paper, bearing the red seal of Kubla and the signatures of his treasurers.

The earliest specimen of paper money known to exist today is the Kwan, a Chinese note issued during the Ming Dynasty (1368-1399 A.D.). The Kwan is about the size of a sheet of typewriter paper.

Counterfeit Wampum

When the early colonial settlers departed for North America they left behind them a well-developed coinage system. The few foreign coins that the colonists brought with them were used in European trade. In their new homeland they soon found themselves engaged in primitive barter or using Indian wampum as money. However, a few "far-sighted" settlers soon learned to counterfeit wampum; and thus it lost its value.

"Two Bits" and "Four Bits"

After trade with the West Indies was developed (in early colonial times), Spanish eight-reale pieces were widely circulated. These coins, known as "pieces of eight," became standard money and remained in circulation until 1857. To meet the need for small change, colonists frequently cut these "Spanish dollars" into fractional parts. A half section of the dollar became "four bits," and a quarter section was "two bits."

In New England

people are
going places . . . fast

New sea and airport facilities each day bring the Old World closer to the New. Across fertile pastures and woodlots, over streams and hillsides, new super-highways are making the whole of New England one unified, bustling community.

Out on the road today you may pass a chemistry professor commuting to his Cambridge classroom from southern New Hampshire . . . a banker out from town to look over some new industrial property . . . skilled workers in sports cars . . . men, women and children hurrying to new plants, new places and pleasures.

Today New Englanders are alive to new ideas, new jobs, new opportunities . . . to living life fully the year 'round. Your plant or your business can prosper here.

NEW ENGLAND ELECTRIC SYSTEM

This thriving region's largest electric utility system, New England Electric, lies in the heart of the world's most diversified industrial area, serves over 4,700 industrial firms and more than 1,000,000 customers.

NEW ENGLAND ELECTRIC SYSTEM, Boston 16, Massachusetts

Influence of 'Extras' and 'Specials' in Determining Stock Yields

by Alfred C. Boni

THE LAST DITCH EFFORTS of du Pont to retain its holdings of General Motors stock, with or without voting privileges, served to produce many dramatic courtroom scenes. The impressive array of witnesses testifying on behalf of the government, as well as for du Pont, included eminent college professors, bankers, brokers, investors, economists and experts of every sort. The big and little stockholders of both du Pont and General Motors were also given roles as witnesses. In almost every case the witness was buttressed by numerous exhibits, including charts and statistical compilations of every description.

Of the extensive materials introduced aggregating hundreds of exhibits, a chart depicting the course of the yield of General Motors stock compared with that of the market as a whole based on Standard & Poor's composite index of 500 stocks — because of the manner dividend "extras" were treated in the determination of yield — provoked one of the most acrimonious exchanges of the entire trial between the writer, testifying on behalf of the government as an economist, and a du Pont attorney.

It was the position of this witness that both yields (dividends) and earnings are largely determinative of the relative levels of common stock prices, and since general economic conditions can hardly fail to be reflected in the activity—and profitability—of every company, they serve, in turn, to tie together in a generally consistent pattern the relative price movements of specific stocks. It is only when the experience of specific companies encounters an important departure, in dividends and earnings, from the general trend that the price of its stock may be expected to move "out of line" with the price movements in the stock market as a whole.

While factors determining both relative and absolute prices of stocks are of an almost infinite variety, some measurable others are susceptible of only a qualitative analysis. Their relative prices may be explained very largely on the basis of comparative dividends and earnings. Analysis indicates that while in periods such as 1932, when for most companies earnings were nonexistent and dividends were often omitted or nominal in amount, both the general level of stock prices and the relationships among them reflected mainly book values.

In the long run, however, insofar as dividends are currently earned, and not simply a distribution of accumulated surplus, it is a demonstrable fact that they are the most important single factor bearing upon the relative prices of stocks, particularly with respect to seasoned securities.

GM Compared with 500 Others

In order to demonstrate that the basic thesis with respect to yields (dividends) serving to keep stocks "in line" holds for General Motors, a comparison was made of the course of the yield on General Motors stock with the yield on the 500 stocks comprising Standard & Poor's composite index on a quarterly basis for the period 1946 through the first quarter of 1958.

It was also pointed out with regard to the chart that yields are conventionally computed by cumulation of actual dividends paid during the given quarter and the preceding three quarters, and dividing the sum by the closing price at the end of the given quarter. Therefore, a yield so computed reflects both regular and "extra" dividend payments. When the average yield on a large number of stocks is computed in this way, the inclusion of the "extra" dividends does not ordinarily distort the indicated yield. The reason is that in some measure the dividend omissions or reductions on certain component stocks tend to offset the "extras" on others in the group.

There is obviously no possibility of such countervailing developments in a computation of the yield on a single company's stock. Hence, the conventional method of computing yield may give quite erratic results when applied to a particular stock, if the company's dividend disbursements happen to trace an uneven pattern.

Such an outcome is illustrated concretely by reference to the course of General Motors dividends over the period reviewed. Thus, in each of the first two quarters of 1948 General Motors paid a per-share dividend of 75 cents; in the third quarter one of $1.00; and in the fourth quarter one of $2.00. In 1949, the per-share dividend was $1.25 in each of the first three quarters and no less than $4.25 in the fourth quarter. In

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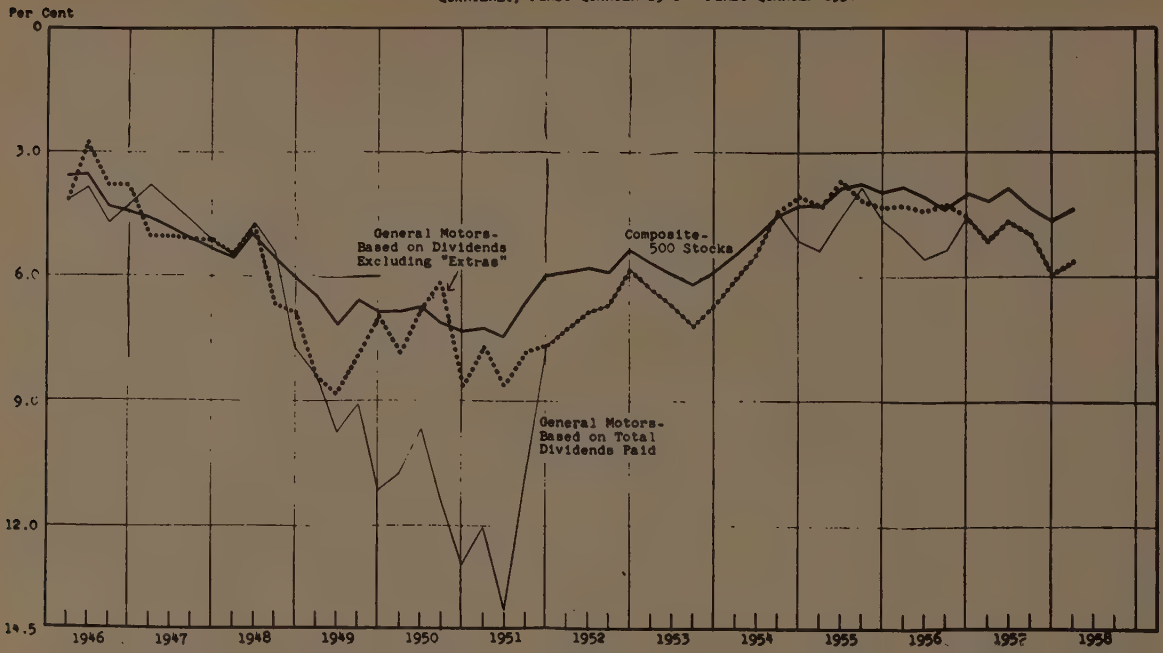
Alfred C. Boni is president of Boni, Watkins, Jason & Co., Inc., management and economic consultants. Recently he testified as an economic witness on behalf of the U. S. Department of Justice in the government's suit against the E. I. du Pont de Nemours Co. to enforce the divestiture of its General Motors stock.

COMPARISON OF YIELDS ON GENERAL MOTORS COMMON STOCK WITH STANDARD & POOR'S COMMON STOCK YIELDS OF 500 COMPANIES (COMPOSITE)
QUARTERLY, FIRST QUARTER 1946 - FIRST QUARTER 1958



1950, the distribution was $1.50 per share in each of the first two quarters, $4.00 in the third, and $2.50 per share in the fourth (on the new stock; equivalent to $5.00 per share on the old stock). This uneven pattern of dividends is reflected in striking abnormalities in the yield on the market price of General Motors stock during the period affected thereby (i.e., from the fourth quarter of 1948 through the third quarter 1951 since the conventional computation of yield as of the end of any given quarter involves cumulation of dividends over that and the preceding three quarters).

Yields on GM Stock Cited

Reference to General Motors dividend distributions during the period discloses that in the quarter preceding this 12-quarter period the yield on General Motors stock, computed on the conventional basis of cumulated actual dividends, stood at 5.40%, and in the quarter following this 12-quarter period at 7.68%. On the other hand, during this 12-quarter period the yield rose to clearly anomalous levels, reaching a phenomenal peak of more than 14% in the second quarter 1951. In only one quarter (fourth of 1951) in the entire 12-year period reviewed did the yield on General Motors stock reach a level almost as high as even the *minimum* yield (7.71%) for any quarter during the 12-quarter period of extremely erratic dividend disbursement.

A single "extra" dividend was paid, also, at the end of 1955. This disbursement, however, was accompanied by no radical rise in the yield on General Motors stock and may be explained on two grounds. First, its magnitude (50c per share) was not comparable with that of the earlier "extras." Second, it was an isolated phenomenon, not part of a series marking the extremely erratic record of dividend payments over a three-year period, as in 1949-1951.

It should be plain that the yields on General Motors stock (computed by the conventional method) during the 12-quarter period were indeed abnormal. It should be equally plain that the abnormality is traceable, primarily at least, to the numerous "extra" or "special" dividends that General Motors paid during this period.

Analysis of this abnormality in the pattern traced by the yield on General Motors stock (so computed) suggested that it may be accounted for by a proclivity of prudent investors to focus attention mainly on the regular dividend rate and to completely discount the "extra" dividends in view of their "special" and non-recurring nature. And if one foregoes the advantage of hindsight, it can hardly be regarded as unreasonable for investors to treat these "special" disbursements as windfalls. The repetition of such a largesse (or by whatever name called), is not something that the ordinary conservative investor appears disposed to count on.

Application of a 'Multiplier'

Stated otherwise, the yield is the result of the application by the investor of a multiplier to the dividend representing his assessment of a reasonable pay-out period on his investment including a rental value (interest) for his money. Insofar as "extra" dividends are evaluated by the investor, it would only be proper and prudent to apply a multiplier of one indicating a willingness to pay for the "extra" on a basis equivalent to a one-year pay-out.

On the basis of this analysis it was expedient—and appropriate—in the light of the problem to distinguish between what may reasonably be regarded as "regular" dividends and "extras" in computing the yield on General Motors stock. This method of computing the yield consisted of multiplying by four the "regular" dividend for each quarter and dividing the product by the quarter-end closing price. The "extra," or "special," disbursements were disregarded.

It is not always easy to determine what part of a particular dividend distribution may properly be regarded as the "regular" component and what part, if any, is "extra." Occasionally General Motors designated what was obviously an "extra" payment as a "special" dividend, or a "year-end' supplement. But words provide a not very helpful criterion in this connection. More significant is the relationship of the size of the payment to that in immediately antecedent quarters, or in the year-previous quarter. Of course, still more dependable a criterion is provided by the record of distributions in subsequent quarters, though that involves taking advantage of hindsight. This witness stressed the need to a degree, consistent with realism, for a subjective determination in making the practical distinction between "regular" and "extra" dividends in computing the yield on an individual stock.

Accordingly, the resultant General Motors yield series was plotted, quarterly, first quarter 1946 through first quarter 1958, along with the same series based on the conventional method of computing the yield and the average yield similarly computed for the 500 stocks comprising the Standard & Poor's composite index. Significantly on the basis of the revised yields, the movements of the yield on General Motors stock and those of the yield on listed stocks generally (as reflected in the average yield on the 500 stock group) tend to conform, and the variation between them is significantly minimized. Thus it strongly supports the thesis that the distribution of General Motors stock would be supported by the influence that yields—acting as a common denominator—have in tying together the relative values of seasoned securities.

Du Pont Attorneys Charge 'Invalidity'

The du Pont attorneys, however, insisted that the comparison between the adjusted series tracing the yield for General Motors and that of the Standard & Poor's composite was invalid since extras and specials had not been eliminated from the latter as in the case of the General Motors yield. The attorneys persisted in their position regardless of the fact that the refinement suggested by them as mandatory to validate the comparison, would produce little if any, change in the quarterly fluctuations of the composite yield.

Also noteworthy, with respect to the underlying thesis, is that the extremes of the range in yield (based on the revised computation) and for the market as a whole (as reflected in the 500-stock composite index), were reached practically simultaneously. The data also indicates that, measured quarterly, first quarter 1946 through first quarter 1958, the lowest yield during this period for both series occurred in the second quarter of 1946, when the General Motors series dropped to 2.80% and the 500-stock composite series to 3.56%. From that point, both series rose persistently to new highs of, respectively, 8.87% and 7.16%, in the second quarter of 1949.

Thereafter both series reacted. In fact, the General Motors series did not subsequently (during the period reviewed) surpass that of the second quarter 1949 high. However, the composite series moved up to an all-period high of 7.42% in the second quarter of 1951, and in that quarter the yield on General Motors stock, too, rose to a level (8.62%) closely approaching its second quarter 1949 all-period high of 8.87%.

Narrow Spread Between Series

Significant also is the narrow spread between the two series. Since the yield on General Motors stock (based on the revised computation) exceeded that on the 500-stock composite group in the majority of the 49 quarters tabulated, the spread between the two is measured by the excess (or deficiency) of the General Motors series over the composite series.

Thus computed, the spread between the two series ranged from +1.93 percentage points in the first quarter of 1949 to −1.00 percentage point in the third quarter of 1950. For the entire period, the quarterly average yield on General Motors stock was 5.84% and that on the composite group of 500 stocks, 5.29%.

Thus, the average spread was only 0.55 percentage point, or, measured from the yield on General Motors stock, less than 1%. So narrow a range of spread and so slight an average difference in yield lend strong support to the thesis that the price movements of General Motors stock and the yields thereon are closely tied to those in the stock market as a whole. A clear deduction from this demonstrated close relationship is that the persistent parallelism of movement is traceable to a common cause.

One further refinement suggests itself in computing the yield of a single stock, not advanced during the trial. This would be not only to eliminate the "special" or "extra" dividend in determining the yield, but to treat the price on an "ex-dividend" basis. It is obvious that without this further refinement it would result in an understatement of the yield, even though only slight.

RCA Electronics introduces the tube of tomorrow

Called the Nuvistor, this thimble-size electron tube is likely to start a revolution in electronics. RCA engineers scrapped old ideas—took a fresh look at tube design. The result will be tubes that are far smaller, perform more efficiently, use less power, can take more punishment, are more reliable. Developmental models now being tried out by designers will have a profound effect on the size, appearance, and performance of electronic equipment for entertainment, communications, defense, and industry in the future. It is another example of the way RCA is constantly advancing in electronics.

RADIO CORPORATION OF AMERICA

A Reappraisal of the World's Economy

by Donald H. Randell

Successful investing not only calls for careful selection of individual securities, but an awareness of the broad trends of the general market over the immediate-term future. At this writing the market seems to be settling back after having pushed up into unchartered territory. Just six years ago, a similar situation prevailed. Russia's "peace offensive"—after termination of the Korean war—found the market very much on the defensive. Fears of excess capacity in raw materials and industrial output were widespread. Pundits viewed, with gloomy predictions, the mounting unemployment figures as veterans returned to mufti. The New York Times stated: "Instead of a depression, a stronger economy, based on sounder fundamental conditions than we have known for years, can be the outcome of peace in Korea." This was the gist of a reassuring speech by George Humphrey, then Secretary of the U. S. Treasury, and it temporarily stemmed the decline in the stock market. But stocks declined later on passage of sharply reduced appropriation bills. The market closed lower for the fifth consecutive week. And on May 8, 1953, a New York Analyst, Donald H. Randell, wrote a report which is as timely today as it was then. Excerpts from that report (which originally had a strictly limited circulation), are published below—**Editor.**

* * *

No well-informed person can see any real change between the philosophic and economic stands being taken by Russia and the United States. An armed camp philosophy is the order-of-the-day in both countries, and there would appear to be no change, at least for the next 10 to 20 years—short of an all-out war, which is improbable, or a Russian revolution which is equally improbable.

Russia is not a new nation, but an old one that has regained a tremendous vitality and is once more aggressively pursuing an expansionist policy which predates even the Czarist Regime. Internal gains under the Communists, in the eyes of most Russians, appear to be stupendous. Most Russians know no other way of life, and there seems to be no reasonable grounds for any assumption whatsoever that the Communist leaders can be overthrown from within.

However, the Russian masters are extremely realistic, are bound by no scruples of truth or morality, and can only be trusted to move singlemindedly toward accomplishment of their own national interests. Where many people go astray is in feeling that Russia's only desire is to vanquish us by force of arms. This is furthest from their minds, and probably will be undertaken only as a last resort. At this time, it appears safe to assume that although we could live peacefully with Russia, she cannot exist at peace in the same world with us. The discrepancy between the physical benefits to the masses of our enlightened capitalism, and the pitiful plight of the average Soviet citizen, makes any true comparison unthinkable. Therefore, the Communist State has to be kept in an isolated seclusion, with the only possible comparison of that between their present lot and of their serfdom under the Czars.

Russia is now faced with three alternatives, if we grant the "no real peace" postulate that seems so fundamental.

1. Build up her basic and incidental economy to out-produce us, to raise her own living standards to comparable levels, and to be able to equal us in war-making potential.
2. Reduce our economy to her own level or below, by destruction of our industrial complex through sabotage or war.
3. To force us, by repeated minor aggressions and constant pressure short of all-out war, to spend ourselves into destruction.

The third was Lenin's philosophy, and has been the specific policy pursued by the Soviets from 1944 to date. It has been appallingly successful, as we all know. We are spread all over the globe; we are spending dollars to Russian pennies; and our loss of life has been extreme, at little cost to her. Russia maintains the initiative and, in addition, has the enormous advantage of operating in a world in ferment. We in North America can scarcely appreciate conditions that exist in most other areas. Our ancestors moved into a sparsely settled continent, rich in raw materials, and killed off the indigenous Indians. In Asia, Africa and South America, Western civilization moved in and enslaved the natives who had been passing most of their time either feeding themselves or raising monuments to their Gods or their dead. South America revolted, but large parts of Asia and Africa will be in unrest for years to come, and are tinder boxes set for the spark of Russian intrigue.

National Debt—Its Implications

It is not generally realized that from the dawn of recorded history—ever since man had any kind of a governing body—that there has always been in existence a trend toward the gradual cheapening of any

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currency in use. In a nutshell, any government, either king, congress or parliament, generally finds it easier to borrow than to tax. As borrowings build up, there is a tendency to debase the medium of exchange, to extinguish debt with cheaper dollars than those by which the debt was originally incurred. (Sometimes of course, the debt is simply disregarded, and we start all over again). This means that tangible things—land and goods—are usually better to own over long periods, than the currency for which they might have been sold. In other words, very simply, prices over the long run have a tendency to rise, and therefore, money, or dollars, has a tendency to decline in real value. This process accelerates during war times, because so much more is spent than can be derived through taxation. Some people call this inflation, which is impossible to eliminate and difficult even to control.

If our assumptions are correct, we could then expect to see over long periods (accelerated during war times) the stock market, which represents things, rising faster than the bond market, which represents a call on future dollars. There seems little doubt that a portfolio of common stocks is now worth more than pre-war, while bond holdings, even though dollar amounts were secure, have shrunk materially in relative value. It appears possible that the old axiom of bonds for safety, and stocks for growth, lost its major truth with the advent of Roosevelt in 1933. The old ideal, of course, was to stay in commons until depression loomed, then shift into bonds as a repository of value until the skies cleared, then back into stocks. Unfortunately, this theory presupposes:

1. that such times will occur with enough regularity for the prescription to work and
2. that the investment managers will be able to recognize such periods in time to, and succeed in, making such switches, both back and forth.

In short, the gradual shift into a managed economy over the past 20 years seems unlikely to be reversed in any major degree during the period of danger and unrest we see ahead. With the normal swings of the business cycle dampened down by external influences and government action; the huge national debt; and the necessity for a high level of spending, it could be that the maintenance of too high a ratio of fixed income securities might be in effect a more risky position than would be the case with a larger percentage of well selected common stocks. Our present tax laws, of course, also favor this approach. While we are now in the process of (if not reversing) at least slowing down the trend toward cheaper and cheaper money, there seems no guarantee that the pendulum could not swing back at any time.

Investment Lessons. America, with 7% of the world's population, living on about that percentage of the earth's surface, uses up about 70% of the world's petroleum, about 50% of the world's mineral output and does 40% of the world's work. Although we were originally richly endowed with most raw materials, our exploitation has been so aggressive that we may have already used up an important fraction of our non-replaceable raw materials. Even in peace, our economy would have to reach out more and more for world-wide new supplies; and under present world conditions, this is all the more important. We must buy from those to whom we sell, even if we lose something in the bargain.

Freer Trade Seen

As mentioned before, this seems to indicate that as we lose our traditional isolationist doctrines, our tariff barriers must of necessity come down. No longer can we protect a few industries or areas at the expense of our allies. It must be realized that a local plant, infinitesmal in an American community, may equal the dollar output of a whole area in one of our poorer neighboring countries. It seems clear that the administration is well aware of this fact, and that under the present emergency long strides will be taken toward freer trade. This will hurt many phases of American business, and badly, but it is difficult to pose an effective alternative. At the same time, shipping and transportation should benefit from greater volumes of commerce.

As world trade opens up, and new sources of supply come on stream, it seems wise for us to prepare to broaden our own investment perspective. We have made a good start into Canada, but we must one day be prepared to look at Africa, at South America and other places. This is not as startling as it may sound; most of us are now looking further afield than we realize. For example, three years ago, who knew the name

Donald H. Randell, author of this article, is shown above reading newspaper on a recent trip to Europe. Beside him, in top hat, is jobber in the London Stock Exchange. Others are: Edward Maybeck (left) Chase Manhattan Bank and Thomas Davidson, Jr., Bacon, Stevenson & Co.

of the Premier of Iran? Now, who doesn't? We now have Firestone in Liberia; Kennecott Copper in Africa; Sears Roebuck in South America and the like. American industry has not only diversified itself internally as to products, but geographically throughout the Continent, and is now beginning to spread through both hemispheres.

It is logical to assume that American industry will be encouraged by the administration in this move for two reasons: in order to tap new sources of raw materials; and through reciprocal world trade, to raise living standards abroad to the point where Communist propaganda falls on deaf ears. While this expansion will benefit those companies astute enough to participate in the movement, at the same time it seems reasonable to assume that many others, less flexible or far-sighted, will fall by the wayside.

Also, another basic economic fact of life seems to be the United States' small labor force, compared to the hordes of men, women and children available to our enemies. Only by the broadest use of machinery and mechanical means can we remain competitive. At present, we produce more food than we need by the utilization of 11% of our labor force. In Asia, it is estimated that 80-90% of the entire population is engaged in the production of barely enough food to sustain life.

However, lest we become too complacent, it must be realized that only a small increase in relative efficiency in the populous East would free tens of millions of people for other work, while we—already very efficient—must keep advancing to stay abreast of the parade. Here again, those companies which are successful in the further development of agricultural machinery and fertilizers, business machines and machine tools, should continue to be successful. A corollary field is materials handling. For example, it is estimated that 54% of America's food dollar goes for marketing costs, which drop but little when farm prices decline. Therefore, the farmer has to bear the leveraged brunt of any minor slackening in consumer demand; and it is felt that this percentage can be reduced by more efficient methods.

'Speed is of the Essence'

The transportation and communications industries should grow rapidly in the years ahead, both because of the trend toward broader trade fields and higher costs. For example, speed in bringing raw materials to the point of manufacture is of much less importance than the absolute cost of such transportation. But the reverse is true in delivery of the finished product where speed is of the essence. Much capital is tied up by then in the product. Competitive conditions are important. The buyer needs things "yesterday." Airlines, air freight and other such modern media should prosper. Shipping also, should build up, but whether or not in American bottoms is conjectural. Where other countries can build shipping at much lower costs per ton than we can, primarily due to wage differentials, and operate the finished product with similar lower labor costs, the competition can be tough. This illustration serves to point up one of the really knotty problems facing the American economy, one which will take all of the brains and statesmanship of business and government even to begin to work out a solution. It is the vastly differing living standards, and wage rates, of the United States and the rest of the world.

Heretofore, by out-inventing, outgrowing by machinery, and out-producing by machinery, we could compete with coolie labor in most lines. Now, to build up our allies we must make a real effort to mechanize and industrialize these peoples to do much more for themselves. Mishandled, this effort could create a Frankenstein, and we would be raising the standards of others at the cost of lowering our own. We could lose markets by teaching a degree of self-sufficiency. This need not happen, because human wants can never be completely satisfied. But it is a move that is fraught with dangerous potentials, and one that bids fair to force many radical changes in the present pattern of American business.

CONCLUSION

It is recognized that many of these observations are not new, and that some are highly controversial. But a few basic facts seem to stand out as indisputable:

1. We are in for a long period of the "cold war" that could erupt into active hostilities at any time.
2. We must maintain a position in readiness for an indeterminate period to come, building up our allies and our own defenses.
3. Such an effort seems to indicate:
    (a) A protracted period of high level spending, with government in business, world trade rearranged and tariff revisions within our economy in a continual state of flux.
    (b) No general depression can be "allowed" to happen. If so, we could lose everything in one fell swoop. Instead, it is probable that we will see industry by industry, and company by company, readjustments, as patterns change and managements learn to live with altered conditions or be overwhelmed by them.

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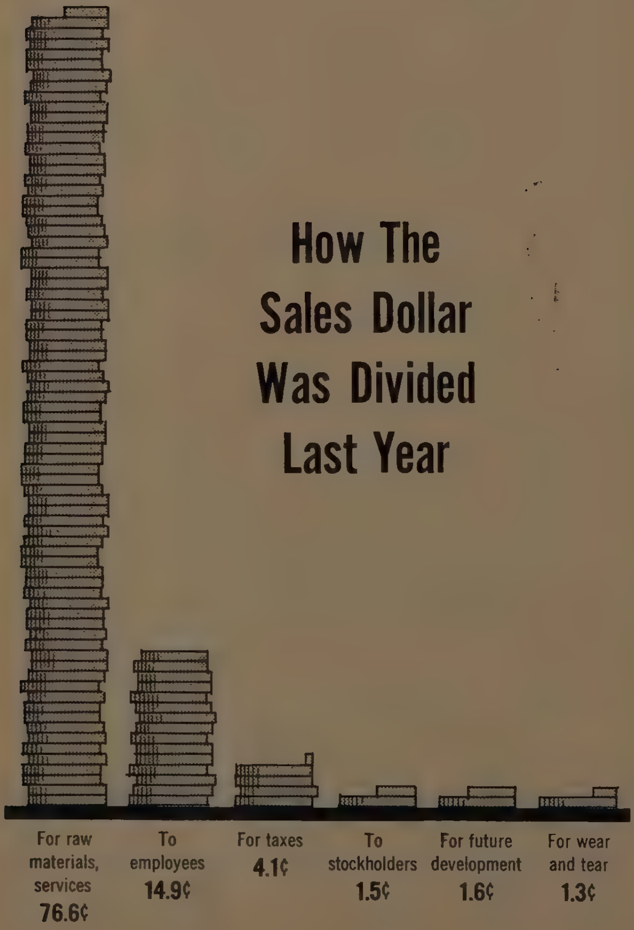
In the minds of many people the myths about the stock market and Wall Street still becloud the facts. Some still think that the Exchange community has some mysterious control over stock prices and economic events. In reality, of course, the auction market merely mirrors the nation's hopes, fears, mistakes and strengths.

General Mills

reports for its 31st year

New All-Time Record Sales: $545,998,493
New All-Time Record Earnings: $16,817,466

How The Sales Dollar Was Divided Last Year



General Mills' Annual Report for 1958-59 is a story of progress. Thanks to the devoted efforts of the thousands of men and women who make up our company, this record has been made possible. Our thanks, also, to the millions of customers who buy the company's ever-expanding variety of products.

The figures below provide the barest skeleton of General Mills' financial performance for its 31st year. You are invited to write for a free copy of the complete report. Address: Public Relations Department, General Mills, 9200 Wayzata Boulevard, Minneapolis 26, Minn.

	1959	1958
Received from the sale of products and services	$545,998,493	$529,820,115
Goods and services purchased from others, and amounts set aside for depreciation	424,949,262	415,841,463
Wages, salaries, and retirement benefits	81,603,904	78,140,404
Taxes	22,627,861	21,144,651
Net earnings	16,817,466	14,693,597
Dividends paid	7,999,006	7,956,207
Earnings in excess of dividends	8,818,460	6,737,390
Net earnings-per dollar of sales	3.1¢	2.8¢
-per share of common stock	$6.77	$5.94
Taxes per share of common stock	9.75	9.25
Land, buildings, and equipment	106,802,704	95,573,735
Working Capital	87,636,434	78,898,053
Stockholders' equity	154,098,003	143,055,469

HIGH FINANCE IN SUGAR

by Bernard Colodney

(Editor's note: This is the second in an extended series on commodities. The first, about Cocoa, was published in our May 1959 issue).

In writing an article about an actively traded commodity for a publication by and for Security Analysts, the question arises as to the degree of simplification. Considering that sugar is nothing more than a chemically pure organic compound (sucrose), which has the chemical formula of $C_{12}\ H_{22}\ O_{11}$, the ramifications of international trading in it are complex—indeed if not complicated.

Sugar is probably the most controlled and restricted of all commodities dealt in on exchanges. It is one of the few commodities which is either produced or consumed in practically every country in the world; and all governments have become violently nationalistic upon the subject of sugar. Thus, the forces which act upon sugar prices are widespread. The sugar market Analyst envies his stock market confrere, whose only concern seems to be whether the Dow Jones industrial average will hit 1000 by 1961 or 1965. And, the worst that happens when the stock market Analyst is wrong is that his customer turns from a trader into an investor, and settles for a 3% yield on his investment.

The sugar market Analyst has 1001 facets to his job. Sugar is the most sensitive commodity in international trade. It moves when Eisenhower, Khrushchev, Nasser, Castro and the head of a longshoremen's union make a speech. Weather news affects it. Strikes in New York, Havana, San Juan or Hawaii have an effect. There is no such thing as a long term point of view. To many sugar traders, a long term position is one which they hold *all day*.

A BIT OF HISTORY ABOUT SUGAR

There are references to "sweet cane" in the Bible, in Jeremiah vi:20 and Isaiah, xliii:24; but the origin of sugar is believed to go back to 300 B.C. when the armies of Alexander the Great found cane growing on the banks of rivers in India. Soon after that, sugar cane culture spread over much of the ancient world, and sugar entered into international commerce. Until the time of the Crusades, the use of sugar seems to have been confined to the East; but the Crusaders brought sugar back to France in the 11th century, after which its commercial development and use became widespread in Europe. At this time, Venice was the center of the sugar trade, and here the sugar loaf, a cone weighing several pounds was devised, because it was easier to transport in that form. For many years thereafter, traffic in this commodity was very largely in loaf sugar—and even today, sugar is packaged for the African trade in loaf, or cone form.

Sugar cane can be grown only in the tropics or semi-tropics, and there is no region in Europe suitable for its production. One of the first things Spanish and Portuguese explorers did after the discovery of the new world was to set out sugar plantations in the West Indies for the production of this highly prized commodity.

In fact, it is not too much to say that the discovery of America was due in part to sugar; for as we all know, Columbus was seeking a westward passage to India, and sugar was one of the commodities which made the new route so desirable. Cortez brought sugar cane to Mexico, and thence in the 16th century it came to New Orleans. The sugar plantations of Louisiana stemmed from that early beginning.

Napoleon achieved fame as a military strategist, but we sugar traders believe that his real fame lies in being the father of the world's beet sugar industry. Due to war with England, sugar supplies were shut off, and to off-set this condition, Napoleon appropriated funds to encourage research work with a view to producing within Europe, a substitute for cane sugar. His decree of 1811 forced farmers to plant beets, and this marked the beginning of the movement which has led to the huge annual production of beet sugar throughout the temperate zones of the world.

From having been a highly prized, and highly priced luxury—available only to princes and potentates as late as only 5 centuries ago—sugar has now become an everyday necessity.

Manufacture of Sugar

Sugar cane is a grass, much like a corn stalk without the ears of corn, only much taller, attaining a height of 8 to 24 ft. Like corn, sugar cane has a tassel when it is ripe. The stalk has something of the appearance of bamboo, and its sugary juice is contained in the pith. Cane does not have to be planted every year, because the roots that remain after the cane is cut throw up new cane shoots which may be relied upon for as many as

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Bernard Colodney, a commodity specialist with 30 years of experience, is a partner with Monitz, Wallack & Colodney. He is also a member of the New York Coffee and Sugar Exchange and of the New York Cocoa Exchange. Mr. Colodney holds a degree from the Bernard Baruch School of Business and Public Administration, College of the City of New York.

10 to 30 years. Water is important in the cultivation of cane, and a tremendous amount of it is required, even though the long leaves of the cane form a vegetation so dense that the sun cannot penetrate to the ground to cause rapid evaporation. In some areas, irrigation is practised. In Cuba, there is so much rainfall that irrigation is unnecessary. Fertilizer is used heavily in some areas, while in others, cane trimmings left in the fields and plowed under give lasting fertility to the soil.

While the cane is growing, there is little or no sugar content in its juice. The sun's rays change it to sugar in the ripening process. No sooner is the cane ripe than cutting begins. An experienced cane cutter, using a long curved heavy butcher knife called a machete, will cut a stalk near the ground with one slash, and cut it into three or four sections while it is falling. The leaves are stripped off in the field, and the cane is loaded into ox-carts or narrow-gauge railroad cars for transport to a mill. There, the stalks are dumped upon a conveyor which carries them to a crusher where the juice is extracted. A crusher is like two gear wheels which mesh. As the cane is fed between the wheels, a mat of it is formed, which is then fed through a series of as many as 18 sets of rollers under pressures as high as 400 tons.

Cane Used for Fuel

By the time the cane has passed through the last set of rollers, very little juice is left in the stalks. As a matter of fact, the mass of cane is so dry that it is taken to the mill's furnaces and used as fuel. Incidentally, the ashes which remain are returned to the cane fields as fertilizer. By this process, 98% of the sugar in the cane is squeezed out, and the juice is then caught in troughs and let into large tanks. There, lime is added, and it is heated to near the boiling point. Impurities coagulate, and settle to the bottom. Other impurities in the form of scum rise to the top. In between, the clear juice is drawn off. The juice is then boiled until crystals begin to form. However, these crystals are surrounded by a mother liquid, molasses, and the whole mass has the consistency of slush. To separate the molasses from the sugar crystals, the mixture is poured into a cylinder which is revolved at tremendous speed, and the centrifugal force causes the sugar to adhere to the inside of the cylinder. A spray of water is played upon it, and the molasses washed out, leaving raw centrifugal sugar, which is traded in on the New York Coffee & Sugar Exchange.

This raw sugar is brown and is about 96% pure sucrose. When the sugar has reached this stage, the centrifugal is halted, the bottom dropped out, and the sugar falls into a feed line which dumps it into burlap bags. These bags differ in weight in various producing countries of the world, ranging from 130 pounds in the Philippines, to 325 pounds in Cuba. In recent years, there has been a trend to eliminate this step, and the resultant labor involved at the various stages in its shipment to refineries, by shipping the sugar in bulk.

Because the great bulk of sugar comes by steamer, refineries are located on the waterfront. Steamers tie up at the refinery pier, and as the raw sugar comes over the side of the vessel, samples are taken in sufficient volume to get a fair sample of the entire shipment. These samples are composited and then analyzed to determine the true sucrose content of the shipment. *On the basis of the sucrose content is determined the price paid for it, as well as the duty paid to the Government.*

Sugar refineries are generally rather tall buildings, so that the sugar can flow by gravity through the various processes that ultimately result in the 99.9% pure, and almost perfectly white product, that we use in our daily lives.

While beet sugar is not traded in on the Exchange, its production deserves mention by virtue of its importance to the economies of the many countries which produce it, and the political overtones involved in its existence.

A sugar beet is not red, but white. It is shaped like a large carrot, and runs between one and two pounds in weight. Beets run as high as 19% sugar content. They grow best in temperate climates. In the United States, California, Colorado, Michigan and Utah are the chief beet centers. Beets exhaust the soil rapidly, and consequently, crop rotation is practised in beet growing areas. Due to this crop rotation, and the fact that in any given season a farmer may decide to plant something else, forecasting beet yield is strictly a guess. The price of beet sugar is usually determined by the price of cane sugar, with beet sugar generally selling at 10 to 20 cents per 100 pounds under refined cane sugar, though it has at times sold at a lower basis.

From the political point of view, it seems that nowhere in the world is beet sugar grown unless the producer receives some protection in the form of tariff or subsidy, including the United States. Cuba alone, for example, could probably produce very nearly all the sugar that this country consumes, at prices substantially cheaper than we do it ourselves, and recently, consumers in the United States have been paying more than double the world price. In short, cane sugar can be produced more efficiently than beet sugar. Very few, if any, world crops exceed the value of the sugar crop. Consumers in the United States alone spend annually almost $2,000,000,000 for their sugar supplies. World production and consumption of sugar exceeds 50,000,000 tons, and that is a lot of anything.

NEW YORK COFFEE & SUGAR EXCHANGE

The world's sugar trade needs the Exchange, needs the protection which it affords and needs the barometric function which it provides. An examination of the Exchange's membership will reveal that it includes producers, importers, refiners, brokers, commission houses and consumers. Members of the Exchange and their branch offices are located in all parts of the world.

The sugar producer harvests his crop over a relatively short period of the year. It is generally necessary for him to finance his cost of production, else he would have to sell his output hurriedly, without regard for price or marketing conditions. The Exchange has eliminated what used to be a magnificent gamble, and affords him a market. Once he has hedged his crop, or part of it, he can obtain a maximum loan against the crop. In hedging, he has set a price for his sugar, and can then take his time selling the actual sugar to the importer (or operator as he is known in the sugar trade) or directly to a refiner. The operator performs a service resembling that of the specialist on the Stock Exchange. He keeps the market orderly and fluid, stepping in on weakness or strength to buy or sell actual sugar. His buying and selling may be for delivery as much as three or four months away, and he eliminates the time risk by taking an opposite position in futures. When he liquidates his actuals commitment, he undoes his futures.

Industrial users of sugar—bakers, canners, packers, candy manufacturers, soft drink producers and the cereal trade—wanting to establish in advance the cost of their sugar, will buy futures on the Exchange. They could not buy a year ahead from a refiner, but they can purchase sugar futures as long as 18 months in advance. They enter the purchase of such futures on their inventory records in the same way as if they had contracted for the actual commodity.

Over the years, there have evolved several contracts which have formed the basis of trading on the Exchange. At present, there are two active contracts, the #4, and the #6.

The #4 contract is the "world sugar" contract. Its basis is 50 long tons of Cuban cane sugar delivered in any warehouse licensed by the Exchange in designated Cuban ports; or growths of cane sugar other than Cuban delivered in any warehouse licensed by the Exchange in the ports of origin approved by the Exchange; or Western Hemisphere sugar delivered in bond in any warehouse licensed by the Exchange in the port of Norfolk, Virginia. In practice, deliveries over the years have consisted of Cuban sugar in warehouses at Cuban ports.

How the Contracts Operate

The receiver of #4 sugar gets it in warehouses, but all of the expenses to put it F.O.B. have been prepaid. He also receives an export certificate validated by an instrumentality of the Cuban government, which is valid for the balance of the calendar year; and this permit entitles him to export the sugar to any country in the world other than the United States.

The Exchange has an agreement with the Cuban authorities that receivers of sugar on the #4 contract shall have free access to their sugar, and that the sugar shall be freely available for removal from warehouse. This agreement has been scrupulously honored by the Cuban authorities ever since the inception of the #4 contract.

The basis of the #6 contract, which was established to fulfill the requirements of the United States quota system, is 50 long tons of Cuban Raw Centrifugal Cane Sugar in bond. Duty Paid Cuban Cane Sugar, other foreign growth duty paid cane sugar, Duty-Free sugars, and Cane Sugar produced in continental United States, may also be delivered, at a premium equal to the import duty prevailing on Cuban sugar of like polariscopic test on the delivery date. The #6 contract calls for delivery at end of ship's tackle of vessel berthed at a licensed warehouse, or, at buyer's option—at a customary safe berth designated by the buyer, in the port of New York.

Perhaps at this time, I should explain the mechanism of the *United States Sugar Act,* which has necessitated the existence of a "world sugar" contract, and a "domestic sugar" contract on the Exchange.

Under this law, the Secretary of Agriculture is empowered to estimate annually the probable amount of sugar which the United States will consume. Having determined the quantity, the Secretary allocates this amount to various producing countries, including domestic cane and beet producers, according to statutory formula. During the course of the year, the Secretary of Agriculture may revise his appraisal of the quantity this country will consume, and increase or decrease the original quota. Its effect is to limit the movement of the market, because the aim of the Sugar Act is, among other things, to "protect the welfare of consumers of sugar and of those engaged in the domestic sugar producing industry." This has tended to make prices of #6 sugar much more stable, over the years, than #4 sugar; and therefore, this contract has little speculative appeal or public participation.

SUGAR HAS DRAMATIC MOMENTS

Nevertheless, there are times when #6 sugar has dramatic moves, the last of which was less than three months ago, when the leading Cuban operator, Julio Lobo—known throughout the world as "Mr. Sugar"—gave a lesson in sugar marketing to the refiners along the Eastern and Gulf coasts. He completely outsmarted them, and even lent a dramatic touch in the process, by sending a vessel loaded with sugar back to sea, so that the sugar would not come to port on a distressed basis. The refiners had been waiting for successively distressed cargoes of sugar to come to port unsold, and had been picking them up on a bargain basis, with domestic sugar selling at lows for several years. As the first step in his operation, Mr. Lobo corralled all available freight space for the next month. Next, he bought #6 futures heavily, to discourage sales of nearby and future raws. In less than a week, he forced a rise of over $9 a ton, one of the most successful coups ever pulled in the domestic raw sugar market.

Mr. Lobo is reputed to own the largest collection of Napoleona outside of France, and his interest in Napoleon characterizes his trading in sugar. He is probably the only individual in the world who stands ready, 24 hours a day, to buy or sell any quantity of sugar that is bid for, or offered by anybody, any place. He is to the sugar world what the Yankees used to be to the baseball world, and there have probably been even more cries of "Break up Lobo!"

THE SUGAR TRADING MECHANISM

Trading in sugar futures is done around a ring. At 10 a.m., when the bell rings signifying the opening of the market, the Caller, an employee of the Exchange, ascends the rostrum, and calls off in succession each month, beginning with the current one and continuing through the next seventeen. On the opening call, trading is restricted to the month called. Bids and offers remain in force unless withdrawn by the bidder or offerer. Following the opening call, all months may be traded in, and bids and offers must be hit or taken immediately, else they are vitiated. Prices must be established by open outcry around the ring, and no trades may be made except across the ring. Orders may be executed only by members of the Exchange, whose membership is limited to 350, and who, before being admitted to membership, must satisfy the Exchange as to their financial responsibility, business standing and integrity.

The Exchange machinery is organized for and geared to speed efficiency, because every sugar futures contract is identical to every other sugar futures contract as to quality, quantity and terms with but two exceptions: price per pound, and month of delivery. A customer giving his broker a market order should see his trade on the ticker within seconds. All around the perimeter of the trading floor are telephone booths, which contain public and private lines to offices and customers. The large Wall Street wire houses thus have instantaneous connections to the trading floor, and the largest of them has a direct connection from the Floor to its office in Havana.

Price Range Limited

Trades during any one day are not permitted to be made at prices varying more than 50 points, equal to ½c per pound, above or below previous closing prices; and the price range during any one day is limited to 50 points.

Many New York members of the Exchange are members of the Clearing House, which is a separate organization from the Exchange. All contracts traded in on the Exchange must be cleared through a member of the Clearing House. The Clearing House assumes the selling end of all bought contracts, and the buying end of all sold contracts. Clearing members must keep cash margin on deposit with the Clearing House, so that its position is made invulnerable. First, each clearing member must deposit a certain amount, known as the guaranty fund, which is left on deposit as long as the firm remains a member of the clearing house. In addition, members must deposit original margins on each contract opened, and also must settle daily at the closing price, either by paying to or receiving from the Clearing House. Furthermore, the entire clearing membership has a joint responsibility, based on its proportion of the total business done over a given period. In its entire history, it has never been necessary to invoke this provision of the by-laws. In a general way, the Clearing House is patterned after a bank clearing house, in which offsets are made and only final differences are settled.

Sugar Futures Similar to Stocks

Trading in sugar futures is, in many respects, similar to trading in stocks. There are also important differences. Orders are placed with a broker to buy or sell 1 or 100 contracts of sugar futures, precisely as an order is placed to buy or sell 100 shares of stock. The order is transmitted to the Exchange floor, executed by a floor broker, recorded on the ticker, and reported to the Commission House, and then to the customer, precisely as a stock order is handled.

When you buy 100 shares of stock, that is a transaction in a tangible piece of personal property, and the purchase price is paid in full in exchange for the actual physical conveyance of the stock certificate. The purchaser may not pay the full purchase price, but the broker does, and the difference between the partial payment or margin, and the amount laid out by the broker constitutes a debt by the customer to the broker. In sugar futures, when the broker buys a contract for the customer, no sugar is delivered or paid for. The customer furnishes margin to an extent determined by the rules of the Exchange.

Margin furnished on purchase of stocks constitutes a partial payment and reduces the amount owed the broker by the customer. The function of margin furnished on sugar futures is to protect the broker in the event the market should move adversely. It may be the same amount as the broker pays to the clearing house, or it may be more or less, depending on the status of the customer. Non-members of the Exchange who are not in the sugar trade are required to deposit the highest amount of margin. Members of the Exchange are required to deposit the smallest amount.

Sugar futures terminology may be somewhat confusing to the average trader who is accustomed in his daily business life to *make* a contract, rather than to *buy* and *sell* it. In effect, when a customer gives me an order to buy 10 May #4 Sugar, he is telling me to "make, for his account, a contract under the terms of which the other party will deliver to me 500 tons of sugar in a warehouse in Cuba some time in May 1960, at which time I will pay for it at a price to be agreed upon now. Furthermore, to avoid all risk of non-performance by the other party to the contract, I am instructed to make it with another member of the Exchange, particularly with the member who makes the lowest price now at which he will deliver the sugar next May."

SOME TAX ADVANTAGES

One of the most important by-products of trading in sugar futures is the possibility of important income-tax savings, with very moderate risk. These savings may be accomplished through the medium of straddles, which is the simultaneous buying of one month and selling of another. The #4 futures are probably the finest medium for tax minimization, because of the relative stability, and consequent minor risk, of the various months in relation to each other, due to the fact that active #4 months tend to move along parallel lines.

Therefore, once a position has been established by simultaneously buying one month, such as July 1960, and selling another, such as September 1960, market movements will automatically create a profit on one leg of the operation and a loss on the other. The nature of world sugar is such that if July 1960 advances 6 points on any given day, September 1960 in all likelihood will also advance 6 points. If an international disturbance, similar to Korea or Suez, should break out, resulting in a 300 point advance in the price of world sugar, July 1960 and September 1960 would probably both score advances of 300 points.

It is an accepted principle that for tax purposes, one futures month is not considered to be substantially the same as a different month, so that the two sides of a straddle are treated as separate and distinct transactions. Thus, if the straddle is closed out after 6 months, the July 1960, or long side of the straddle, is regarded as a long-term transaction, whereas the September 1960 or short side of the straddle is always treated as a short-term transaction, because the holding period on a short sale begins when the property used to close out the sale is acquired; and in the case of a short sale of September 1960 sugar #4 futures, such acquisition and closeout occurs on the same day.

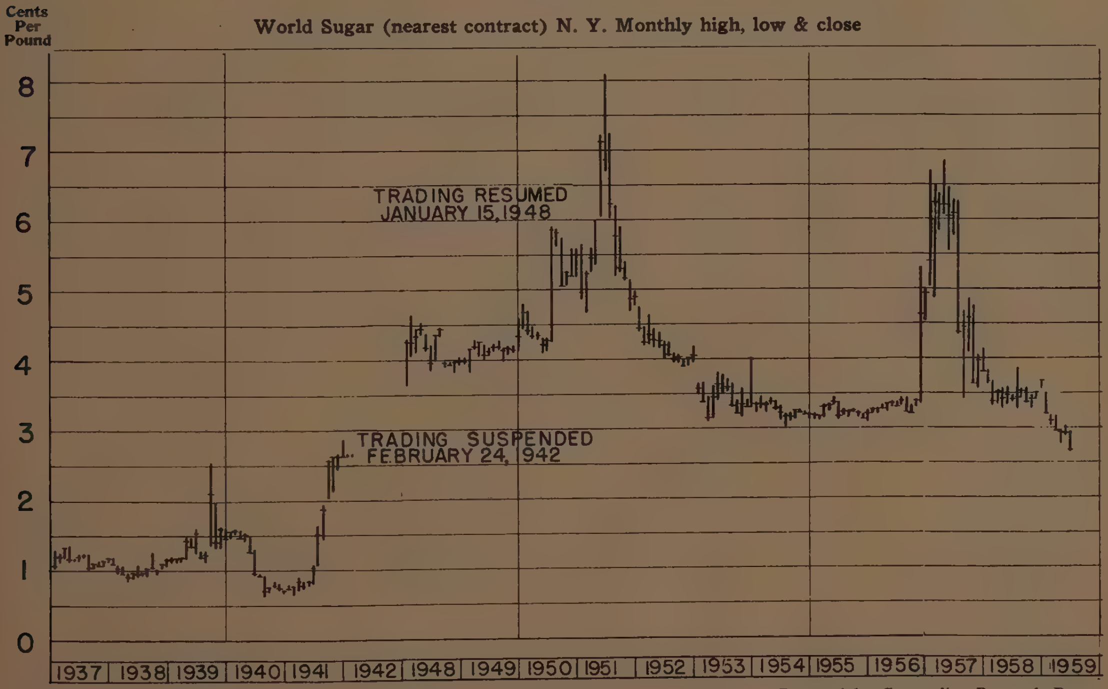
To convert the foregoing example into dollars, let us assume the purchase on August 3rd of 1 contract July 1960 sugar #4 at 310, and the simultaneous sale on that day of 1 contract September 1960 at 312. If world sugar advances ½c per pound by next March, July 1960 futures will be selling at 360, and September at 362. When the July 1960 contract is sold, and the September 1960 contract bought, there will be a long-term gain of $560 on the July and a short-term loss of $560 on the September, less commissions.

This technique may also be used to defer taxes. One with established profits on stocks in 1959 might cover the short leg of his straddle during December this year, and at the same time sell 1 contract May 1960 sugar #4. This would establish the short-term loss, and still leave a protected position open on both sides, long the original July, and short May, which could be held open until 1960, so that the long-term profit on the original July contract would not become a taxable item until 1960.

There are numerous other tax aspects which apply to individual personal situations, wherein transactions in sugar #4 futures contracts may give rise to important tax benefits, such as acquiring short-term losses to offset short-term stock gains, and effecting short-term losses by creating added long-term gains.

Of course, this section is based on tax laws as they

Sugar #4



Prepared by Commodity Research Bureau

now exist, and are presently interpreted, and is always subject to change or limitation by Act of Congress.

CONCLUSION

In recent years, sugar #4 futures have ranged from a high of over 8c a pound to a low of less than 2¾c a pound, while #6 futures have ranged between 610 and 525. As I have stated, the #6 or domestic contract does not particularly lend itself to public participation, because of its being virtually a controlled market. The #4, or world contract, on the other hand, is one which should have particular appeal to a speculator, because when it moves, it is more volatile than the most high-flying "glamour stock" and opportunities for enhancement of capital are tremendous.

In 1957, for example, #4 futures which had climbed gradually to 690 at the end of April, had declined to 331 by early October, a range of over $4000 per contract. Trading that year amounted to over 180,000 contracts.

At this writing, world sugar is selling around its lows for many years, and in view of the confusion which exists throughout the Caribbean area, it is difficult to predict near-term trends. Of course, this confusion tends to keep the market in a state of nervousness, which should have interest to a trader who is looking for action. It bears repeating that sales of #4 sugar contracts on the Exchange may be made without regard to the price at which a previous sale was made. There are no upticks, or zero-plus ticks.

World sugar looks cheap on a price basis. But it also looked cheap 50 points higher, and there are many in the trade who keep mentioning that in the 1930's sugar sold for just over ½c a pound. Yet, it has been my experience that no market ever looks worse than when it is at the bottom. Personally, I can't see world sugar declining much more from existing levels, and although I have stated that many of us regard a long-term position as one which we stay with all day, I feel that going long of #4 futures here will eventually prove a highly profitable acquisition. To me, certainly, it offers greater appeal than paying 50 times earnings for a growth stock. Margin on #4 futures is less than 20% of the value of the contract, so that capital appreciation, percentagewise, has greater potential in sugar #4 futures than in securities.

#4 *Sugar: 'A Crystal Ball'*

An equally important consideration for a securities trader keeping his eye on the #4 market is its ability to evaluate the importance of international political news. When statesmen clash, don't rush to your charts to see what kind of signal you got when Hitler invaded Poland, or when the North Koreans crossed the 38th Parallel. Forget your statistical data, double tops, cup and saucer formations, and usual securities criteria! In other words, don't buy or sell stocks on war news or threats without first checking to see what #4 sugar is doing. Sugar, after all, is the world's most important war crop—both for its value as food as well as for its industrial uses in chemicals and munitions.

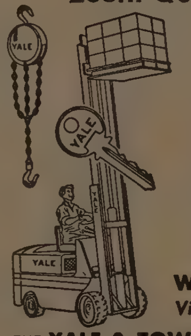
When war clouds appear, little people, big people, and governments all over the world first look into their cupboards to make certain that their sugar supplies are adequate. I don't know whether Khrushchev, Mikoyan, Gromyko, Mao-Tse-Tung or Chou-En-Lai have a position in sugar futures now. But chances are that if they were getting ready to point a loaded ICBM in this direction, they would first have taken a position in sugar, along with their uncles, mothers-in-law, and the editor of Pravda.

We have had several recent incidents attesting to the unfailing accuracy of #4 sugar as a crystal ball. Korea sent world sugar "into orbit." So did Suez. But when Quemoy and Matsu were being shelled; when the Berlin ultimatum was issued; and when U. S. planes were shot at over the Sea of Japan, the market ignored the large headlines and did nothing. As you can see, then, the action of the #4 market will tell you whether the news which sounds so ominous when you read it in the papers or hear it on radio and TV is the real thing, or just diplomatic window dressing. As a war baby, #4 sugar futures beat copper and steel stocks, and in the troubled and hectic world in which we live, being long of sugar futures offers a remarkable and unique insurance policy at low cost.

I believe it appropriate right here to mention—even to securities men—that when the occasion next arises to act on international news, don't try to determine which sugar company stock to trade in, use the actual article itself.

Space limitations have precluded my going into great detail in explaining trading rules, commission rates and various procedures involved in trading in sugar futures. Most of the larger Stock Exchange firms are members of the New York Coffee & Sugar Exchange, and will be glad, I am sure, to give you additional information.

YALE & TOWNE
286th Quarterly Dividend
37½¢ a Share



Payable:
Oct. 1, 1959

Record date:
Sept. 10, 1959

Declared:
July 30, 1959

WILLIAM H. MATHERS
Vice-President and Secretary

THE YALE & TOWNE MANUFACTURING CO.
Lock and Hardware Products since 1868
Materials Handling Equipment since 1875
Cash dividends paid every year since 1899

Columbia Awards First Federation Scholarship

The first student to receive the Helen Slade Sanders Memorial Scholarship, for the academic year 1959-60, will be Mrs. Sylvia Auerbach.

This announcement was made by Edward W. Barrett, dean of Columbia University's Graduate School of Journalism, who stated that the decision was made by the Faculty Committee on Admissions and Scholarships.

Sylvia Auerbach

This scholarship was established by the National Federation of Financial Analysts Societies in honor of the memory of Helen Slade Sanders, formerly managing editor of *The Analysts Journal.*

Mrs. Auerbach, who was graduated from the University of Pennsylvania in 1941, majored in economics. More recently she studied business administration at Hofstra College and took several journalism courses including business news reporting.

She is the author of articles published in the Saturday Review, American Business, Charm and other magazines. Mrs. Auerbach will leave her position as managing editor of The Library Journal to enter the economic writing and reporting program of Columbia's Graduate School of Journalism.

As part of Columbia's admissions vocabulary test "Mrs. Auerbach's score broke the graph," Dean Barrett stated.

When the Analysts' Federation established this scholarship, the resolution, in part read: "It is the wish . . . that the income on this principal amount ($14,000) be used annually, in perpetuity, for a scholarship to assist a worthy graduate student with good grounding in economics and with a particular interest in financial journalism."

Dividend Notice

AMERICAN & FOREIGN POWER COMPANY INC.

100 CHURCH STREET, NEW YORK 7, N.Y.

The Board of Directors of the Company, at a meeting held this day, declared a quarterly dividend of 25 cents per share on the Common Stock for payment Sept. 10, 1959 to shareholders of record at the close of business Aug. 10, 1959.

H. W. BALGOOYEN,
Executive Vice President and Secretary

July 31, 1959.

STANDARD BRANDS
Incorporated

COMMON STOCK DIVIDEND

The Board of Directors declared a quarterly dividend of 65c per share payable September 15th to stockholders of record on August 14, 1959.

PREFERRED STOCK DIVIDEND

The Board also declared a dividend of 87½c per share payable September 15th to stockholders of record on September 1, 1959.

Joseph H. Hoyt
Treasurer

July 23, 1959

OUTBOARD MARINE CORPORATION

DIVIDEND NOTICE

A cash dividend of twenty cents (20c) per share on the Common Stock of the Company has been declared by the Board of Directors, payable August 25, 1959, to stockholders of record August 7, 1959.

R. F. WALLACE, *Secretary*

July 24, 1959

Southern California Edison Company

DIVIDENDS

The Board of Directors has authorized the payment of the following quarterly dividends:

CUMULATIVE PREFERRED STOCK:

- 4.08% SERIES
  Dividend No. 38
  25½ cents per share;
- 4.24% SERIES
  Dividend No. 15
  26½ cents per share;
- 4.78% SERIES
  Dividend No. 7
  29⅞ cents per share;
- 4.88% SERIES
  Dividend No. 47
  30½ cents per share.

The above dividends are payable August 31, 1959, to stockholders of record August 5. *Checks will be mailed from the Company's office in Los Angeles, August 31.*

P.C. HALE, *Treasurer*

July 16, 1959

NEWS ON TEXACO PROGRESS

Two views of progress . . . 57 years apart

YESTERDAY. Texaco's first refinery at Port Arthur came into being in 1902 to turn the black crude oil — newly discovered in quantity — into useful products for mankind. Produced in simple stills, the first products were kerosine, naphtha, asphalt and primitive lubricants.

TODAY. At Port Arthur, and at 11 other major Texaco refineries in the United States, ultra-modern chemical wizardry uses many methods to produce constantly improved gasolines, perfected lubricants, and a myriad of other petroleum products. Because these products are so vastly improved, you can drive a more powerful car — jet planes can fly faster and farther — industry can operate more efficiently. And because it has constantly planned ahead, Texaco's growth has been continuous.

TEXACO

. . . CONSTANT PROGRESS
IN OIL'S FIRST CENTURY

Is It Safe to Invest in Mexico?

by Carl D. Ross

YIELDS OF 7 TO 10% on public utility stocks, 8 to 12% on mortgage bonds, and 18 to 24% on short term commercial loans immediately suggest great risk to American investors and financial analysts. To Mexicans, on the other hand, they are at best only reasonable and conservative returns—barely sufficient to induce them to invest.

There are sound reasons why such yields can be obtained with comparative safety in Mexico. To understand the reasons, one must look to the institutional structure of Mexico and to the psychology of the Mexican government official.

The Mexican is an extremely proud individual with strong national patriotism. To the north, he sees a Colossus—alien in language, law, religion, and culture—which by force of arms took from him the territory that now comprises such rich and rapidly growing states as Texas, California, Colorado, New Mexico and Arizona. If he speaks English (as many men of his class do) the United States Marine Hymn conveys a quite different message from that of an American. He admires the wealth and power of the United States while criticizing the institutions and traditions that generated them. He has been brought up in and conditioned to accept as normal and proper a State in which Government intervention and regulation is extensive. He lives in a society where the population is exploding rapidly—much of it in poverty, by U. S. standards.

Though opposition parties exist, for all practical purposes, PRI (the Party of Revolutionary Institutions) is the only important party. Its leaders are committed to their heritage of revolutionary slogans and their traditional belief that Government must own, or control, many aspects of the economy. Consequently, the "emotional set" of the educated Mexican is toward greater nationalism. He is also strongly inclined to regard landed property as the only safe investment and to invest his surplus funds in land and more land. These elements tend to inhibit the rapid generation of capital in private hands, though a middle class is now developing.

Americans who know little of Mexico firsthand have an impression of the Alamo, the Mexican War, and perhaps of Pancho Villa and the shelling of Tampico and Vera Cruz, as well as a vague memory of the expropriations of the oil, railroad, and mineral holdings of American companies and individuals. Such impressions, and a knowledge that every so often the peso is devalued, do not incline individuals to invest in Mexico, despite high yields.

Investments on 'Solid Grounds'

Actions, the proverb tells us, speak louder than words. Wisdom suggests that prospective investors should look to the actions of the Mexican Government and of foreign banks and corporations. In 1958, foreigners invested more than 100 million dollars in Mexico, about 80% of the sum coming from American companies. In the past six months Petroleos Mexicanos, or PEMEX (the Mexican government oil monopoly) has borrowed from American and European banks more than 95 million dollars. These corporate investors and lending banks are neither naive nor uninformed.

The men running Mexico are shrewd and far-sighted. They know what has been happening in Japan and West Germany. They are aware of the part European capital played before 1914 in the industrial development of the United States, and that British and American capital has played and still is playing in the economic growth of Canada. They realize that Mexico cannot possibly generate internally the capital it must have to raise the standard of living of a population with a per capita income of $230 a year; to reduce illiteracy; and to bring about the increases in production to which it is committed. They know they must obtain much more capital and they must obtain it mainly from abroad. They also know they must increase their visible, and particularly their invisible, exports.

They are making strenuous efforts to do these things. However, their inherited political position, plus a group of nationalized industries, set limits to what they can do economically. These conditions they must live with. However, they know that they must fulfill their goals and they must also encourage private enterprise.

Mexico is potentially enormously rich in natural resources. Since it has never been completely explored geologically, nobody really knows how much wealth is hidden in its mountains. It has a large and rapidly growing population of industrious and intelligent (though over 30% illiterate) people. It is developing a middle class of engineers, technicians, and junior management people, though nowhere near enough for its needs. Its most serious and pressing need is private investment—capital for which it will pay good wages. It is prepared to give handsome inducements to capital that will pro-

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Carl D. Ross, president of Industrias e Inversiones Alba, S. A. de C.V., (an investment company which he formed in 1952 in Mexico City), worked in the economics section of General MacArthur's headquarters during the occupation of Japan. He holds a B.A. degree from Wesleyan University.

vide jobs and increase production, since its leaders realize that only increasing production can bring about a halt or slowing of its internal inflation, better utilization of its labor force, and a rise in its standards of living.

Investment Opportunities: Excellent!

Americans can reap excellent rewards without undue risk through judicious investments, whether or not they become residents.

While financial analysts are primarily concerned with investments in corporate securities made by clients resident in the United States, they should have some awareness of the possibilities in other areas. While scores of large American and European firms in such industries as automobiles, agricultural equipment, electrical equipment and supplies, office equipment, mining and construction equipment and supplies, pharmaceuticals, drugs, cosmetics, and soaps, manufacture and assemble in Mexico, there remain innumerable opportunities for medium size and small manufacturing operations. The prospect (and, given capable management, virtually the assurance) of handsome profits exists for almost any manufacturing operation that:

1. Can produce a consumer product or industrial component that is useful or necessary with reasonable quality control;
2. That can have a relatively high labor component; and
3. That can use Mexican raw materials.

In many states, such enterprises by proving they are new and necessary can get substantial tax and other concessions for a term up to 15 or 20 years. Apart from manufacturing, there is a real need for service businesses; for example, those related to tourism. Mexico has an overabundance of luxury hotels; but it also has a great dearth of motels, restaurants, moderate price hotels, and retail stores of all kinds to serve the American middle class tourists and American and middle class Mexican resident populations. Tourism is almost as important a source of dollar earnings as exports of commodities, and it may soon surpass exports.

Since the peso is freely convertible and as there are no restriction on withdrawals of income from dividends and interest, and devaluation is not likely, people interested in dollar yields (and possible capital gains) can afford to investigate Mexican securities. Because non-residents are primarily concerned with dollar rather than peso income, investors in Mexican bonds must be prepared to get out quickly. The policies and practices of the present Administration are such that informed opinion considers the peso sound at this time. Consequently, reasonably secure yields of 8 to 12% are available.

Cerveceria Moctezuma, the largest brewery in Mexico, has outstanding bonds with an 8% coupon and an indenture provision that an extra 4% interest payment must be made before any dividends can be paid on the stock. This issue is a mortgage bond with a 10 year maturity and sinking fund provisions. The common is selling around 200 paying 16 pesos to yield 8%. Telefonos de Mexico bonds are also 10 year maturities in a number of series with 8% coupons. They are available around 75 or less. This price is artificially depressed because would-be telephone subscribers are compelled to buy bonds (and also common stock) to get a telephone installed. Then they may be dumped at the market, and investors snap up in the 65-80 range. Available current yields, therefore, are around 10 to 11%.

Telephone common stocks (like all Mexican stocks) are bearer shares with coupons attached. Coupon 23 was paid April 29, 1959, at the rate of 10 pesos. The market for the stocks with coupon 24 is around 80 for an indicated yield of 12.5%. Mexico Light & Power and IEM, like La Consolidada and a few others, are traded on the American Stock Exchange or over the counter in New York, Montreal and Toronto.

Effects of Devaluations

Equities, historically, have not been hurt by devaluations. On the contrary, whether one wants dollar or peso income and appreciation, devaluations have helped them. Immediately after devaluations, assets are usually revalued to dollar equivalents. Wages do not increase immediately, and profit margins often widen; and the market price in pesos after a time lapse moves up to restore the price in dollars to predevaluation levels.

Since currently the expansion of the Mexican economy is at an annual rate of 6% or more, and since the regression of earnings on sales in well run and growing companies increases per share earnings more rapidly than sales rise, well chosen equities in Mexican industrials such as paper, steel, cement, and other basic industry stocks have inbuilt growth characteristics. However, markets are thin and stocks have to be accumulated and distributed carefully, and GTC orders at specified prices rather than market orders are always advisable.

Obviously, Mexican securities cannot be bought blindfolded. They are investments in what is essentially a controlled but rapidly expanding economy, and in a currency that has a past record of devaluations. However, for those willing to keep themselves informed as to the strength of the peso and for those who perform a careful analysis of the management (plus past performance, and current prospects of securities in which he is interested or contemplating taking a position), Mexican securities can provide an interesting combination of high current yields and opportunities for appreciation on capital for investors willing to take "businessmen's risks."

The Bolsa de Valores (Mexico City Stock Exchange) through its publications, makes much data available in Spanish. There are also American investment advisory services in a position to furnish both data and analyses of Mexican securities on a fee basis in English. Then there are correspondents of several New York Stock

Exchange Member Firms who can execute orders and render custodial and other normal brokerage services.

Real estate is another field attracting foreign investors. Commercial, industrial and resort properties show cycles of appreciation and boom that make Floridians envious. For example, a recent study shows that in Mexico City residential land prices increased an average of 100% per year over 20 years, calculated on a dollar basis.

Since Mexicans have traditionally preferred land to all other forms of investment, a high percentage of available new local capital tends to go into real estate developments. Mexico City's most exclusive avenue, the Paseo de la Reforma, has been "overpriced" for 30 years, yet values still climb as investors continue to clamor for frontage on the Reforma. Currently an average good lot on this "Fifth Avenue" sells at 40 to 60 dollars per square foot. Bolivian Tin King Antenor Patino recently purchased 260,000 square feet at these prices, and is building what is claimed as the Western Hemisphere's grandest hotel.

Resort areas on the Pacific coast also are booming with many joint Mexican-American plans afoot for luxurious tropical hideaways. One handicap in real estate operatons is a restricting foreign ownership along coastal or border areas. But this presents no problems inland.

Mortgages offer similar returns to those obtained in the United States and do not normally provide sufficient protections on a dollar guaranteed basis for them now to be suitable for foreign investors. The biggest opportunities for the real estate investor willing to defer income is in buying into situations at "wholesale levels" before the heavy markups occur in moving into retailing on installment plans that generally are needed to move large acreages.

For the investor who needs income and appreciation, and who is willing to keep himself reasonably well informed about the developments in economic affairs that may affect the exchange ratio or the prospects of given companies in which he is interested, Mexican investment can be as safe as investment in comparable U. S. or Canadian situations. Yields from 8 to 12% are not a danger signal.

* * *

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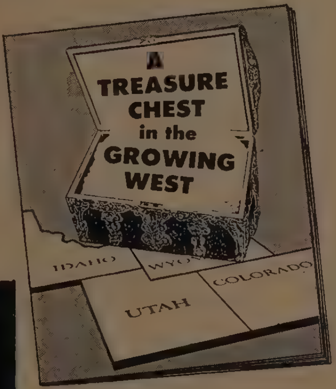

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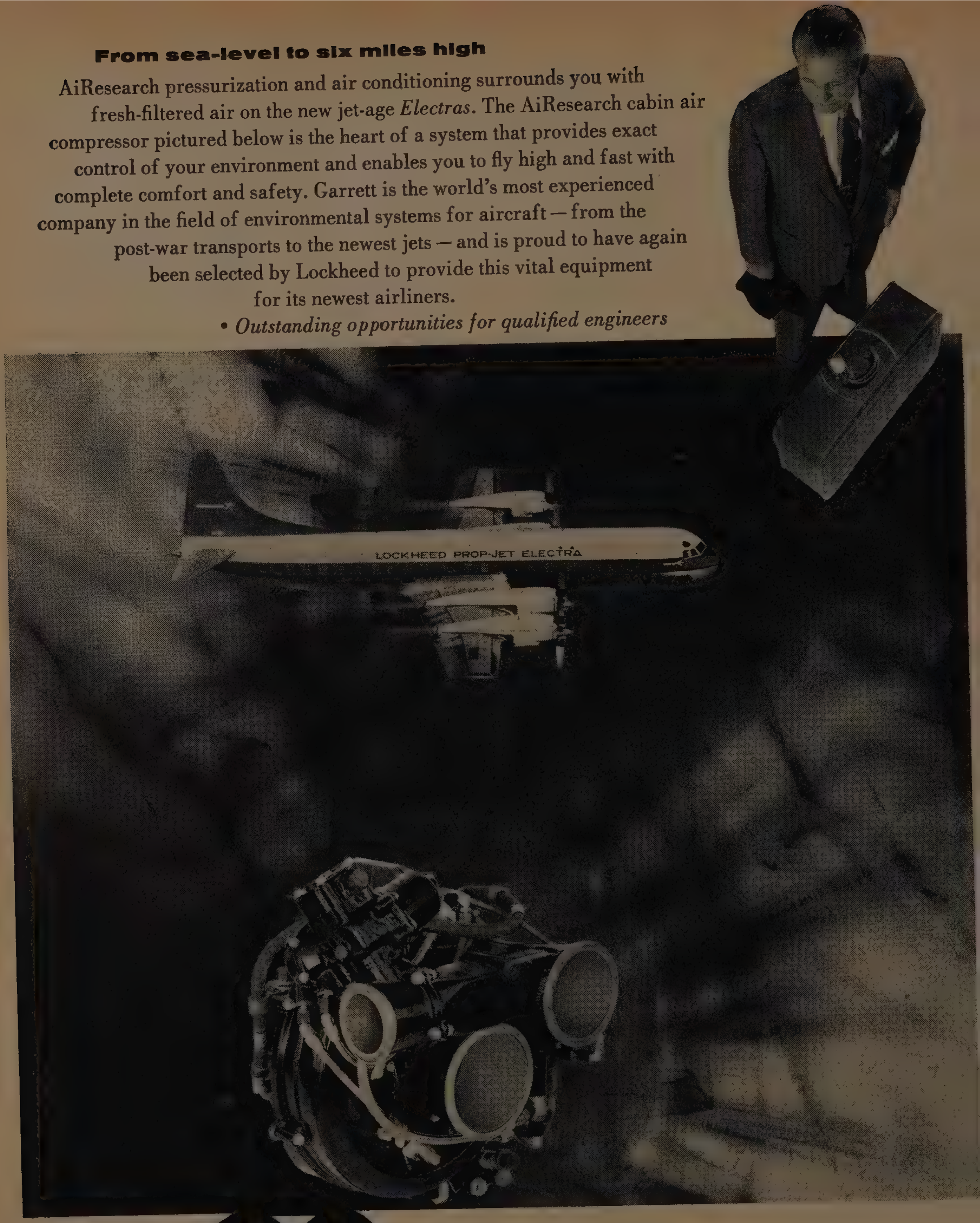

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SEMICONDUCTORS
Young Giant of the Electronics Industry

by J. T. Cataldo

Semiconductors are the highly specialized and, of late, much talked-about components that have been pumping new blood into the electronics industry.

The rise of these new products has been phenomenal —booming from sales of $50 million in 1954, to a high of $228 million in 1958. So phenomenal and rapid has been its growth, in fact, that many investors have purchased stock in these new devices without much of an idea what a semiconductor is. Many simply knew that they had something to do with the new genie of the space age, electronics.

First and best-known among the rapidly expanding family of semiconductors is the transistor. Due to its dramatic application to such consumer products as radio and TV sets, hearing aids and the like, the transistor has become a household word to the average gadget-minded American.

Less-publicized than the transistor, but equally important to the electrical design engineer, is the second member of the semiconductor family, rectifiers and diodes. These more prosaic devices are finding their way into thousands of circuits the world over by replacing vacuum tubes in the basic job of converting alternating to direct current.

Photocells and solar cells represent the third field of semiconductors. These are the versatile new light-sensitive devices that are doing such varied jobs as setting lenses on the new automatic cameras and converting sunlight into useable power for the more advanced earth satellites. But it is in the vast fields of military equipment, heavy industry, chemistry, medicine, computer and data processing, communications, broadcasting and entertainment that semiconductors are really finding their place. They are being put to use in countless equipments and electrical systems that formerly used vacuum tubes; and in so doing, are providing better operation along with miniaturization and virtually unlimited life. At the same time, myriad new applications are taking form on today's drawing boards, applications which never would have been practical without the new, miraculous semiconductors. Small wonder that their growth pattern has been so phenomenal.

While the term semiconductors is a relatively new word, one that has "graduated" from laboratory usage only in the last few years, semiconductors existed as far back as 1938 in the United States. At that time they were called "dry-disc" rectifiers, and were an improvement over the then-common liquid and vapor type rectifiers.

Shockley's theories for p-n junctions and junction transistors were published in July, 1949. With the advent of the transistor, the possibility of rectifiers using the new semiconductor metals germanium and silicon was transformed into reality. Since silicon and germanium rectifiers afforded certain advantages over selenium and copper oxide rectifiers (including extreme miniaturization and high temperature operation) they opened up an entirely new field.

Today, semiconductor diodes and rectifiers are available in thousands of types and configurations with current outputs from microamperes up to hundreds of amperes. The small diodes are used in tremendous quantities in electronic brains and computers. In this application, they replace electro-mechanical components such as switches and relays. It is generally a rule of the electrical engineer always to use electrical or electronic components when possible in place of electromechanical units such as switches and relays. Electromechanical components have the innate disadvantages of being noise-producing devices frequently subject to mechanical malfunction.

One new application for which semiconductor rectifiers will soon be in use is battery charging in automobiles. The trend here is to replace the d. c. generator found in today's autos with an alternator and a set of semiconductors. Since an alternator has far less moving parts than a d. c. generator, it will last much longer and require less repair than the highly mechanical generator. It's only drawback is the fact that it produces alternating current which must be converted to d. c. to supply the car. Here is where the rectifiers come in, providing reliable d. c. conversion during a virtually unlimited lifetime in a very small package. It is expected that this new application of semiconductors to the auto industry will give a substantial boost to the 1960 semiconductor sales figure.

A significant earmark of the semiconductor industry is the rapidity with which it moves and has moved since its inception. It should be remembered, by the investor in the field, that the state of the semiconductor art is

---

J. T. Cataldo, vice president of International Rectifier Corp., holds a B.E.E. degree from Brooklyn Polytechnic Institute and a B.M.E. degree from Clarkson College of Technology. He is the author of more than a score of papers on theory and applications of metallic rectifiers.

based essentially on the twin sciences of physics and chemistry, both in an extremely fluid state at the present time in regards to electronics. For this reason, the company to watch is the one that keeps up with the latest developments and trends in the industry.

An example of this rapidity of movement is the trend toward miniaturization that has been the touchstone of the semiconductor manfacturers. It will be recalled that originally "compactness" was the watchword in designing electrical equipment as recently as 10 years ago. With the coming of semiconductors, this gave way to "miniaturization" and "transistorization," which succeeded in some cases, of reducing an entire room of electronic equipment down to a desk-size unit.

This was soon succeeded by "sub-miniaturization," where the desk-size unit was reduced to an even smaller size, through additional refinements and developments in the industry. Only this year, "micro-miniaturization" was introduced. This process, using the extremely versatile properties of semiconductors, promises to reduce the desk-size unit to a package small enough *to fit into the drawer of the desk itself*.

Work continues on projects of this nature, all aimed at getting more and more performance out of less and less semiconductor packaging. Military and space authorities particularly are following every advancement in the art, since a breakthrough in a given area may well provide the means to the successful launching of a heretofore earthbound missile, satellite or other space vehicle.

Certain it is, that with the coming of electronics into every phase of today's society, with electronic music, with electronic languages, with mathematicians leaving their calculations to computers, and with electronics guiding traffic, aircraft and missiles (as well as cooking meals and regulating heating), electronics and semiconductors are indissolubly wedded to modern man, and to modern economics.

The French firm Lessel (Laboratoires D'Etude sur le selenium, Paris, France), well known producers of semiconductor devices, will shortly begin to manufacture and market silicon rectifiers under the terms of a licensing agreement just completed with International Rectifier Corp. of El Segundo, California.

* * *

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EASTERN FINANCE CORPORATION report for the nine months ended June 30, 1959:

	1959	1958
a—Earned per common share	$0.35	$0.29
Outstanding loan balances	5,295,251	3,717,961
Net before taxes	132,314	79,505
Income taxes	43,887	14,410
Net income	88,427	65,095
Common shares	240,628	234,662

a—After preferred dividends and based on average common shares outstanding during period.

Bankers Meet Challenge of Booming Population

by Harry J. Volk

SOUTHERN CALIFORNIA banking institutions today face the greatest challenge as well as the greatest opportunity in the history of this dynamic metropolitan area. Commerce and industry are expanding at an unprecedented rate and banks must keep on the move to provide the service vitally needed in this important market area.

From a sleepy Spanish pueblo, Los Angeles has grown, in little over a century, to a city which one day may well be the world's largest metropolis. Most of this explosive growth has taken place in the brief period since the end of World War II.

Even in the period immediately following the war, Los Angeles County was the world's leader in agricultural production. Orange groves stretched for miles from the towering San Gabriel Mountains, which surround the Los Angeles basin, to the beautiful beaches which stretch from Santa Barbara to San Diego.

Despite the dominance of agriculture, Los Angeles was best known for another industry—motion pictures. Aircraft manufacturing pretty well rounded out the economic picture at the conclusion of hostilities.

Today, it's an entirely different story. The center of a sprawling 13-county market, the Los Angeles Metropolitan Area (Los Angeles and Orange counties) covers almost 5,000 square miles. Los Angeles not only is the heart of Southern California, but it dominates the West. It is a completely self-sufficient metropolitan community — almost isolated, in fact, except for San Francisco 400 odd miles north, and San Diego some 100 miles to the south.

The Los Angeles Metropolitan Area today is the nation's second largest retail center and ranks third in population, buying power, employment, wholesaling, manufacturing and banking. Moreover, it appears that this is only the beginning.

Dr. Robert R. Dockson, Union Bank's consulting economist, who is dean-elect of the University of Southern California School of Commerce, has gained international recognition for his recently published study of this area, which forecasts a population of 10,300,000 by 1975.

What does a well established, conservative banking institution do in such a vigorous atmosphere? Certainly, no important business or industry, including banking, could hope to maintain leadership in Southern California without changing and adapting to meet the needs of such circumstances.

From its founding in 1914 up until late 1957, Union Bank had chosen to remain a single location bank, headquartered in downtown Los Angeles. By offering a highly personalized service to its customers—primarily in commerce, industry, finance and the professions—Union Bank was able to grow and prosper through the years despite tremendous competition.

Through a streamlined bank-by-mail operation and an aggressive commercial lending program, as well as many other specialized services, Union Bank increased its business at a steady rate until, today, it ranks 58th in total deposits among the nation's more than 15,000 banking institutions. During the post-war period, 1948-1957, the bank grew at a rate even greater than the average for Southern California banks as a whole, with resources mounting from $157 million to $420 million.

While this growth continued at a record pace, Union Bank management became aware that its customers and deposit base were spreading with commerce and industry over the broad expanse of this 400-mile square market. Downtown Los Angeles was becoming more and more remote from the outlying communities which were mushrooming at an unbelievable rate. Distances and traffic were becoming more and more formidable.

It was a time for a review of policy and new action. At Union Bank we felt we had to move quickly and intelligently to meet the complex needs of commerce and industry which, in turn, were struggling to serve constantly increasing demands.

When Union Bank's board of directors decided to break with its 43-year tradition of one-location banking, it realized the break must be made in a special way. We were faced with some difficult problems.

'Money Engineering' On the March!

What could we do to overcome the exigencies of both time and space? How could we best provide vitally needed services to business and industry in outlying areas? How could we best put our traditional "Money Engineering" to work?

"Money Engineering" long has been Union Bank's descriptive phrase for the many unique services which help speed the flow of money and credit for our cus-

---

Harry J. Volk, president of the Union Bank, Los Angeles, is a director of Western Air Lines, Southern California Gas Co., Times-Mirror Co. (publishers of The Los Angeles Times and The Los Angeles Mirror-News), Servomechanisms, Inc., Pacific Indemnity Co., and the Union Bank. Mr. Volk holds a B.A. and LL.B. degree from Rutgers University and has had extensive executive experience with Prudential Insurance Co. of America.

tomers. To be successful every project must be properly engineered. Some companies engineer products—we engineer money.

We put "Money Engineering" to work on the problem of suburban banking. Other banking institutions, much larger than we, already had reached out in an effort to serve the outlying areas. We know that our answer had to be more than traditional branch banking in order for us to serve business on the move.

The answer? Late in 1957 we launched our Regional Banking program, a new concept of banking in the West. As developed by Union Bank, Regional Banking brings banking—complete in every category of operation and service—to the field where it is vitally needed.

In traditional branch banking the point of final decision for all major financial banking transactions must be made at the institution's main office—often resulting in delaying and restricting time lags. In Union Bank's Regional Head Offices, however, customers in suburban communities find complete banking and trust facilities comparable in every way to the services which they have been accustomed to finding in our downtown Head Office.

To date we have established Regional Head Offices in the San Fernando Valley region and in the Beverly Hills-West Los Angeles region. In each instance the Regional Head Office was set up to function as a self-contained unit.

Our regional staffs are skilled in all facets of banking, including the most technical and highly specialized phases of bank service. Each Regional Head Office has the capacity as well as the authority to serve its customers without direction or assistance from the Head Office in Los Angeles.

Decisions on the Spot

There is rarely, if ever, any necessity for loan applications to make time consuming trips downtown for decisions by executives removed from the point of customer contact. Regional executives are given loan limits sufficiently high to enable them to take care of virtually all customer demands; and they are empowered to make their own prompt decisions right on the spot.

In addition to avoiding crucial delays and restrictions for customers, Regional Banking meets another important requirement—it gives the customer a "local" bank with which to do business. It allows him to meet and discuss his problems with persons he knows are acquainted with the community.

Regional offices are operated by executives who devote their entire business careers to the region they serve. They have intimate knowledge of the area, its people and its business and industry. This makes possible a closer personal relationship and a better understanding between officers and customers.

Development of Union Bank's Regional Banking program is a long range project and was under consideration many months by our board of directors before it was undertaken.

Union Bank selected the important San Fernando Valley area for the launching in October, 1957, of the regional banking operation. The Valley area comprises 47% of the land area of the City of Los Angeles plus the incorporated communities of Burbank and San Fernando.

The Valley Regional Head Office was established in North Hollywood in the heart of the Valley, and community offices were established in Panorama City and West Van Nuys to supplement the services of the head office.

'Portal to Portal' Service

Both community offices are located in important industrial and commercial areas and are within a few minutes reach of the Valley Head Office by automobile. When a customer of a community office occasionally needs banking services beyond those immediately available, he can be taken by car on the short trip to the Valley Head Office. There never is a need for long trips to downtown Los Angeles or for bothersome delays while communications go to and from a distant point for decision.

Regional offices refer to the Head Office only those matters involving new policy concepts or situations involving complex banking transactions, such as an extremely complicated international trade deal.

A second Regional Banking operation was established to serve the Beverly Hills-West Los Angeles area late in 1957. A temporary Regional Head Office was opened on Wilshire Boulevard, a few blocks east of the main Beverly Hills business district, and construction began almost immediately on a new eight-story Union Bank building, located at a major intersection in the Beverly Hills area. Union Bank will move its Regional Head Office into this building, at the corner of Wilshire Boulevard and Beverly Drive, before the end of this year.

As the development of this region progresses, it is possible that community offices may be opened in the area to complement the operation in a manner similar to the Valley community offices. However, Union Bank's Regional Banking program does not necessarily dictate establishment of supporting community offices. In the Valley and Beverly Hills—as well as in future territories to be opened—the operation will be tailored to meet the needs of the area served.

Results of Union Bank's venture into Regional Banking have far exceeded expectations. Logical further development of the operation would call for establishment of additional regional head offices in important outlying communities of the Los Angeles Metropolitan Area. The needs of commerce and customers will dictate the direction of further expansion.

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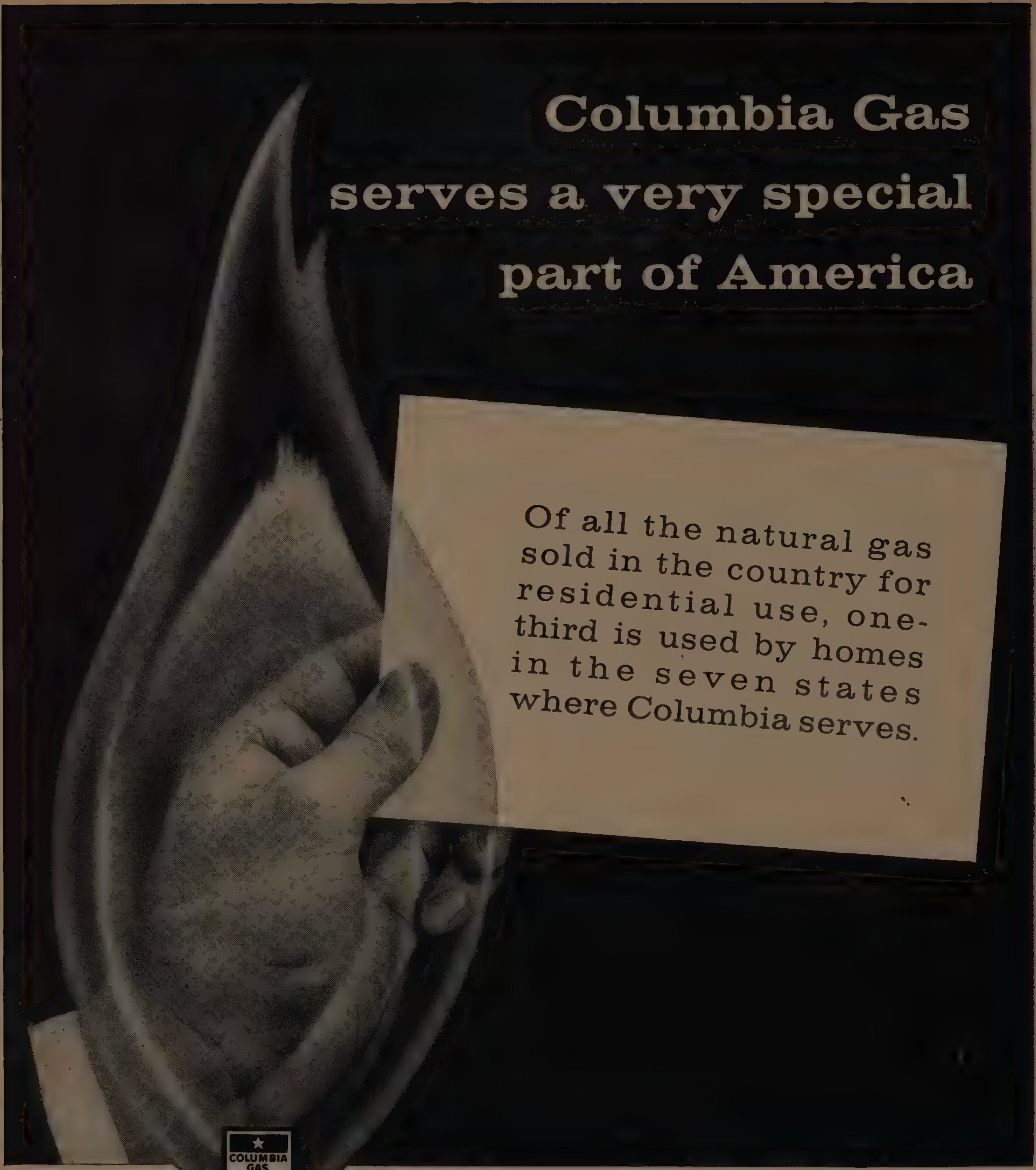

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'.... boom may continue for 25 years'

Secular and Cyclical Trends in the Economy of the United States

> *"About what is invisible, about what is mortal, the gods have clear knowledge, but to us as men, only inference on what is coming is possible."*
> *—Alcmaeon of Croton about 500 B.C.*

by Walter E. White

THE WHOLE WORLD is in the midst of a new transition period. During the past 10 years, the United States has reversed an attitude held for 150 years: that domestic policy must have primacy over international policy.[1] The emphasis in some Western economies appears to have shifted towards the welfare state and an increase in the proportion of public investment. Since trade fluctuations have been a weak part in the American economy during previous periods, the probable trends in the economy are of considerable interest to the entire Western world.

The purpose of the present paper is to outline the secular trends in the American economy since the year 1700 and to indicate the probable cyclic trends during the present century. An attempt has been made to develop some indicators which may contribute to the knowledge of the business cycle. The factors which govern probable future growth are studied and the trends of several of these factors, such as ability to adjust to the external world, productivity, education and monetary conditions are indicated. An analysis of the cyclic trends during the present century shows that the growing confidence that serious depressions are a thing of the past may be unfounded. Several cyclical indicators point to a peak in the present boom about the middle of the 1960-1970 decade. The monetary indicators show that recessions in the 1960-1970 decade will probably be more serious than the three previous post war recessions. However, no recessions as severe as the 1929-1932 type are expected, and the long-term boom which began in 1949 may continue for another 25 years at least.

Figure I indicates the secular trends of wholesale prices, population, gross national product in constant dollars, productivity and stock market prices. Some of Abraham Lincoln's economic advisers projected the population trend of that time, and predicted a population of 200 million people by 1920. The predictions made during the 1930-1940 decade were, on the other hand, too pessimistic.

Although many failures in previous predictions indicate that long-term extensions of trends are unreliable, the secular trends do provide a perspective which adds to our understanding of the present.

The secular trend of the gross national product in terms of constant dollars (solid line of *Figure I*) has a slope which varies between 3% and 3.8% per year.[2] If the gross national product increases to about 500 billion dollars in 1960, as some analysts expect, the slope of the trend from 1947 to 1960 will be at the upper limit of the above range (i.e. almost 4% per year).[3]

The long-term intermediate trend of the gross national product, in terms of constant dollars (dotted line), oscillates about the secular trend and the presence of this intermediate trend makes the exact calculation of the recent rate of growth of the secular trend more difficult. We cannot know how future changes in the intermediate trend will affect the present assumed position of the secular trend. The long upward trend from 1875 to 1930 was probably assisted by the enlarged market resulting from the Civil War, by the development of one of the new sources of energy (gasoline), and by many other factors.

Many opinions have been expressed during recent years about the optimum rate of secular growth as a future objective. Administrative authorities appear to favour a growth rate of about 3% per year. Some of the factors which affect this rate of growth are discussed later in this paper.

The annual increase between 1700 and 1750 was 3% per year.[2] From 1750 to 1880 the slope rose gradually to 3.8% per year as the productivity slope accelerated. Since 1880 the slope has been between 3.0 and 3.4% per year. One characteristic of the 20th century is the

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[1] Footnotes appear at end of article.

Walter E. White, director of instruments and electronics, Canadian Arsenals Limited, holds several patents, is the author of numerous papers and belongs to 19 organizations ranging from a Fellow in the British Interplanetary Society to membership in the American Nuclear Society. His university degrees include M.A.Sc. and E.E., University of Toronto, and B.Sc. (Econ.) University of London.

fact that the rate of population growth is about one half the rate of growth which prevailed between 1700 and 1900, while the slope of the gross national product curve has remained about the same. The severity of the 1929-1932 depression may have been due, in part, to the fact that this recession was the first serious recession to occur during the period of reduced rate of population growth; and the economy may not have become adjusted to this lower rate of population growth. The years 1930 to 1949 may have been a period of correction during which the economy became adjusted to the lower rate of population growth by emphasizing the development of science and the machine.

The stock market curve shown in *Figure I* has a long-term slope of about 3% per year.[4] Between 1854 and 1930 there were three major waves. According to the Elliott wave theory[5] the years 1930 to 1949 were a period of correction and a similar period of three long waves will extend from 1949 to about 2030. There may be a minor correction in late 1961, or early 1962, and a more severe correction in 1966; but the long-term boom may just be starting. The economic offensive of the Western World is based upon a new era of trade and development on every continent. Recent moves to broaden markets in Europe and to stabilize currencies are only the beginning. If the three long waves between 1854 and 1930 are repeated, one would expect the Standard and Poor's index to reach 100 in the 1960-1970 decade. This is the probable peak value of the first of the three waves.

The decrease in the rate of population growth means that the continuity of the rate of growth of the gross national product curve depends more and more upon trade and investment in other countries. Thus, future rates of secular growth depend more upon the ability of the economy to make adjustments with the external world than during the period of internal growth between 1700 and 1900. The pressure for a larger flow of goods and capital to the world will probably increase.[6] This pressure has become evident in agriculture. In the year 1958 the increase in farm labor productivity was almost equivalent to the increase for the entire decade 1920-1930.

The trend of rising productivity in agriculture will probably continue and be accompanied by a continuing decline in the number of agricultural workers. The decline in the relative importance of agricultural employment began over 100 years ago. In 1850 about 64% of the total labor force were working on farms. The figure today is about 10% and this will decline to 6% in 1975.[7] This exodus from the farm has resulted in a great metropolitan expansion and the growth of urban agglomerations which extend for many miles.[8]

The relative stability of the trend of the gross national product during the period of wide changes in the rate of growth of the population is dependent upon the continuing acceleration in the rate of growth of the productivity curve shown at the bottom of *Figure I*. The annual increase in output per man year presumably started at a very low rate (probably less than 0.5% per

Figure I.

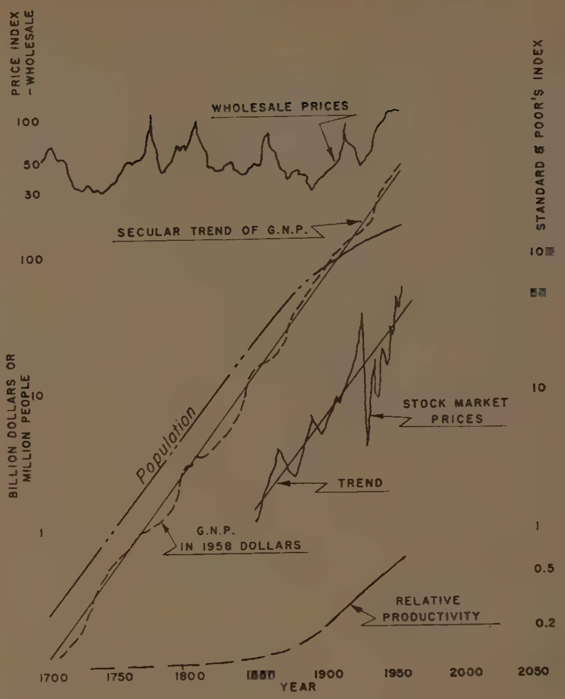
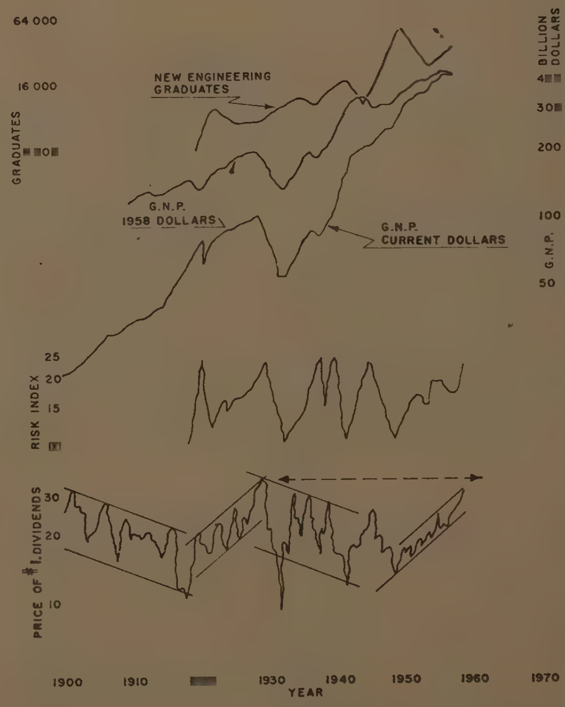


Figure 2.



year) and rose gradually as machine power replaced animal power, to a figure of 1.7% per year during the first half of the 20th century. The major part of this six-fold increase in output per man year occurred after 1850 as shown by the productivity curve. While the average annual increase in output per man year has been 1.7% during the present century, the hours worked per week have been reduced 0.5% per year and, therefore, the increase in output per man hour has been 2.2% per year.[9] The continuing acceleration of this productivity curve means that American business men will intensify their search in foreign markets for a growing share of their income and thus have a greater interest in both the economic development of the outside world and in the international policy of the United States. Business men are the diplomats of the 20th century.

Continuing economic growth depends upon the education of the people. Of all the forces shaping the development of the United States, some of the most powerful arise from developments in science. The full power of these forces could scarcely have been foreseen by the framers of the Constitution.

In the 14 years since the end of World War II, science and technology have developed at a very fast rate. In 1959 the United States government will spend five billion dollars in research, engineering, and development. This amount is greater than the total Federal Budget of a generation ago.

A Federal Council for Science and Technology will be established in 1959 in order to improve the planning and management of government research programs and to aid in the solution of problems common to all federal agencies engaged in scientific activities.

Recent demands by educational authorities for increases in facilities have been based upon the actual size of the estimated future school population. The 20-24 age group was 9% of the population in 1955 and will be about 12% in 1975. An estimate of the actual number of 25-year-olds in the population up to the year 1980 is shown in *Figure III*.

The number of new engineering graduates is indicated in the top curve of *Figure II*. The rate of growth of the trend line is about double the rate of growth of the gross national product in terms of constant dollars.

The problem of engineering "shortages" in the United States has been outlined in a number of papers. The extreme "shortages" in 1955 and 1956 were probably due to:

(1). The fact that the rate of flow of new graduates from universities was below the secular trend for a number of years because of the low birth rate during the 1930-1940 decade.

(2). The fact that the rate of growth of the gross national product has been above the secular trend for a number of years. From 1954 to 1957 the economy grew at a rate equal to almost double the secular rate at the very time the "number of new graduates" curve reached a temporary low point.

Figure 3.

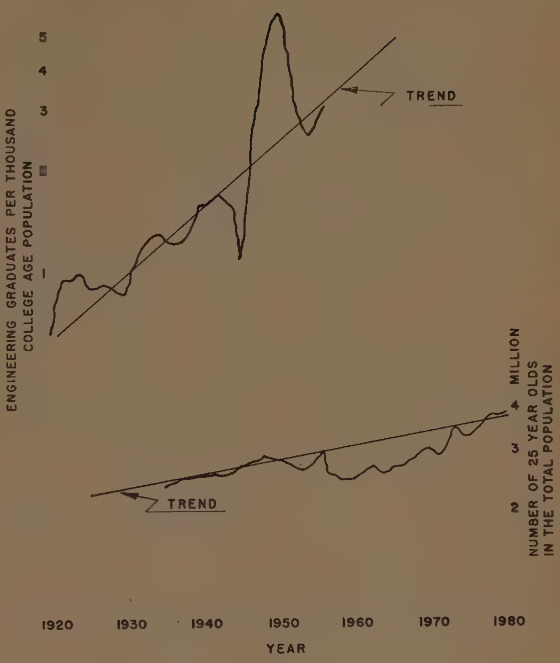
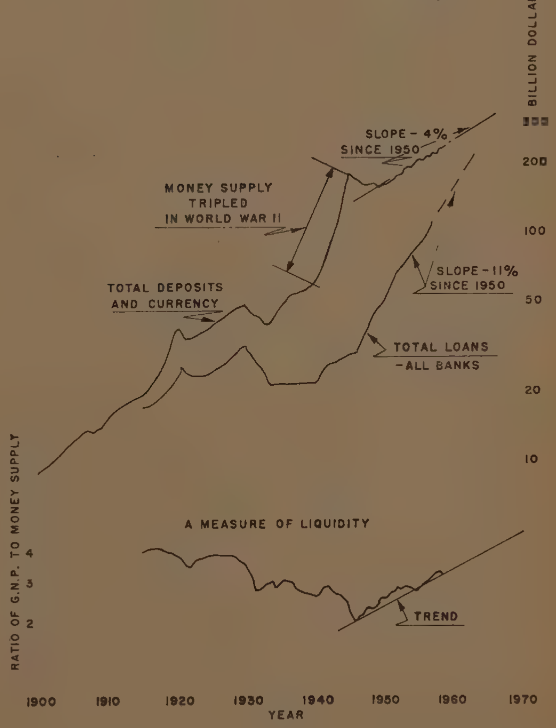


Figure 4.



If the supply curve of "new graduates" is integrated from 1920, the resulting total of engineering strength is equal to the actual total of engineers now living within an error of less than 1%. Should the slope of the supply curve be maintained until 1980, the rate of graduates per annum in 1980 will be about 40 times the 1920 rate. This high ratio indicates that the long-term problem of adequate engineering strength may be one of quality rather than quantity. The number of graduates per thousand college age population, as shown in *Figure III* indicates that the trend of 4½% per year may be adequate to meet the demands of the economy.

Figure II indicates the gross national product in terms of constant dollars and in terms of current dollars during the 20th century. The two lower curves are cyclic indicators which may have some value in predicting turning points in the economy.

The gross national product in terms of current dollars has a slope of 5% per year from the present back to 1880. After a horizontal shift between 1870 and 1880, the line continues with the same slope back to 1830 where a second horizontal shift occurs. Thus, history indicates that inflation is not a new element in the economy. According to some writers there are some advantages in a mild inflation. Some degree of creeping inflation and some unemployment may be part of the price of progress in a free economy.

The risk index shown in *Figure II* indicates the relative degree of business risk. The index is equal to one half the sum of the price of one dollar of dividends and of one dollar of earnings of all stocks listed on the New York Stock Exchange. The perspective provided by this index is valuable. The index shows, for example, that the fear of a major recession in 1953 and 1957 was unfounded. The index also shows that the economy may be more vulnerable during the next recession. The diffusion indices published by the National Bureau of Economic Research do not provide this long term perspective.

The lower curve of *Figure II* shows the long-term cyclic trend in the price of one dollar of dividends of all stocks on the New York Exchange. An extension of the present trend shows that the upper channel of the trend in existence since 1949, will probably reach the peak level of 1929 during the first half of the 1960-1970 decade.

The above cyclic indicators appear to indicate a peak in the boom during the 1960-1970 decade. The curves of *Figure IV* indicate that recessions after this date may be more serious than the previous post war recessions. The post war boom has been based upon the fact that bank loans have been increasing at the rate of about 11% per year while the money supply has been increasing at a rate of about 4% per year.[10] This has been possible because World War II effectively tripled the money supply based on a non-collapsible type of bank credit. An extension of the trends indicates that the ratio of total loans to money supply will be about 70% during the first half of the 1960-1970 decade compared with 55% today. This figure of 70% is typical of conditions in the 1920-1930 decade, because the World War II debt monetization is a non-recurring situation.

The lower curve of *Figure IV* is a measure of the overall liquidity of the economy. The probable trend indicates that the economy may become more vulnerable during the next decade.

The cyclic indicators mentioned above show why the administration and the Federal Reserve Board have been concerned about inflation. The indicators do not show the extent of probable recessions, but they do warn that future recessions may be more severe. The extent of the recession of 1966 may be decisive in determining the secular growth rate for the second half of the present century.

The record between 1949 and 1960 indicates the possibility of secular exhilaration[12] in the economy, and of a repetition of the three long waves of prosperity which began in the latter half of the 19th century. The whole free world hopes that this possibility will become a reality during the next decade.

FOOTNOTES

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2. Norman Silberling, "The Dynamics of Business," McGraw Hill, 1943.

3. Chase National Bank, "Business in Brief," January-February, 1959.

4. Edward R. Dewey, "Stock Prices 1854-1952," an article in "Cycles," published by the Foundation for the Study of Cycles in January 1953.

5. A. H. Bolton, "The Elliott Wave Theory," published by Bolton, Tremblay and Company, March 1959.

6. Simon Kuznets, Volume 1 of "Problems of United States Economic Development," published by the Committee for Economic Development, January 1958.

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8. The National Academy of Economics and Political Science, "Social Aspects of Urban Agglomeration," December 1957.

9. Frederick C. Mills, "Productivity and Progress," Occasonal Paper Number 38 of the National Bureau of Economic Research, 1952.

10. A. H. Bolton, "The Outlook for the Stock Market," The Analysts Journal, June 1957.

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Introduction to Investments: TV-Educational

by Jack H. Canvin

SEVERAL YEARS AGO San Francisco's educational television station in cooperation with The Security Analysts of San Francisco produced a series entitled "Introduction to Investments." In late 1958, KQED desired to present such a series again, its management believing that current public interest in investing would attract many new viewers; furthermore, new and more powerful transmitting equipment had brought additional areas into the station's viewing orbit.

Here was an excellent educational and public relations opportunity for Security Analysts. Of course the series would carry no advertising of any type and would be completely non-commercial. One could not ignore the advantages of presenting the Security Analysts in a way which would afford the public a better understanding of our profession. Equally important, this series of programs would help provide the investing public with some common sense fundamentals, thus providing the participants with a feeling of genuine public service. Needless to say, we accepted the opportunity posthaste.

In order to spread the work load it was soon wisely decided to split the programs between two people. R. B. Johnson of Schwabacher & Co. and the writer became the two new co-moderators. In an adventure of this kind it is always wise to adopt the old rule of the home handy man: "It will be more work and take longer than you think." Only the passage of time and problems can make that rule appreciated.

This series of programs was intended to acquaint the public with the fundamentals of investments. We had to assume that the average viewer was unaware of what stocks and bonds represented. Therefore, we designed the series to move in progressive steps from fundamentals of investment to the characteristics of certain industries. Then we provided some contrasts in investment philosophy, and finally a program on the stock market outlook. Having two moderators, it allowed a free week between programs for each moderator to prepare for his next show. And how fast that next show rolled around!

As the series was sponsored by The Security Analysts of San Francisco, we chose members of the Society to be each week's guests. The previous series, two years before, had used three guests per 45 minute program in addition to the moderator. Such experience led us to believe it practical to use only two guests and make each program 30 minutes in length. A longer program could well be tedious when covering some of the less interesting, but nonetheless essential, subjects such as the balance sheet and income statement.

Of course, the comments of 16 programs should not be detailed here. However, the following capsules note the major points covered for the possible benefit of any group contemplating such a series:

Program #1: Introduction

Presentation by former moderator of the president of The Security Analysts and the two co-moderators. Discuss the main objective of the series. The what, why, when and where. What the program is not: no hot tips but an educational package. Capitalism. The advantages and disadvantages of the corporation as a way of doing business. What are bonds and stocks; their basic characteristics.

Program #2: Investment Banking

Difference between investment banking and commercial banking. Initial organization of an enterprise. How it raised capital to start. Why and how a company does public financing. Example of recent national underwriting. First traded over-the-counter. Pricing a new issue. Regulatory considerations.

Program #3: The Secondary Marketplace

What is the over-the-counter market. How big it is. National Quotation Bureau. Examples of OTC issues. How a trade takes place. Difference between broker and dealer. What is a stock exchange "seat". The specialist. A sample floor transaction. The ticker. Requirements of listing. How to read the financial page.

Program #4: Common Stocks

Equity position. Income neither fixed or limited. Voting characteristic. Share the risk of failure and rewards of success. Why stocks fluctuate. What to look at in the balance sheet and income statement. How to compare one to another. Inflationary effects. Stock splits, stock dividends. Par value. Book value. Rights.

Program #5: Bonds

A liability of a corporation or government. Interest defined. The money market. Why interest rates change. Why bonds fluctuate. Major classification of bonds—Federal, state, local, corporate. Current yield. Yield to maturity. Times interest earned. Asset value per bond. Tax exempts. Taxable yields versus non-taxable yields. Convertible debentures. Debentures with warrants. Bond ratings.

Program #6: Banking and Insurance

Fundamental need for insurance and bank services. Types of insurance and types of insurance stocks. In-

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Jack H. Canvin, is manager of the Investment Research Department of the First California Co., an investment securities firm in San Francisco. Currently Mr. Canvin is on the board of governors of The Security Analysts of San Francisco.

vestment portfolios of insurance companies. Underwriting profit and loss history. Outlook for fire, casualty, and life insurance stocks. Historical record of bank stocks. How service area and type of business affect common stocks. Basic components of earnings—loans and investments. Comparison of selected issues and outlook.

Program #7: Utilities

Regulation; why and who does it. Types of utility service—electric, gas, water, telephone. Characteristics of industrial, commercial and residential sales. Outlook for electric and gas consumption. Current position of atomic energy. The heat pump. Advantages of utility stocks for average investor. Why yields and price-earnings ratios vary over a period of time and also between issues. Comparison of growth type utilities with stable type.

Program #8: Oil Stocks

Types of companies: producers, refiners, marketers, integrated, international. Importance of oil. Foreign complications. Exploration costs. Depletion. Current and long-term demand-supply picture.

Program #9: Building and Construction Industry

Broad scope of the industry. How it relates to national economy. Main segments—residential, commercial-industrial, government. Cyclical fluctuations historically. Actions of government in recessions. Family formation; housing starts. Money market influences. Federal highway program. Investment record of selected building stocks. Best growth areas in the industry.

Program #10: Chemicals

Various segments of a huge industry. Historical performance. Examples in plastics, petrochemicals, synthetic fibers, agricultural chemicals, high energy fuels. Importance of research. Characteristics and comparison of selected chemical stocks.

Program #11: Electronics

Scope of the industry: military, consumer products, industrial, components and replacement parts. Research and development costs. Outlook for industry versus present position of selected issues.

Program #12: Paper and Container Industry

Types of products: kraft, news print, sanitary, white paper, board and building paper. Requirements for industry: timber, water, capital. Competition between producers and between materials. Record of industry during periods of expansion and recession. Per capita growth. What has happened to paper stocks in last decade. Outlook. Other segments of container industry: glass, metal containers, plastic. Comparison of selected issues.

Program #13: Airlines

Rapid period of industry growth. Economics of air transportation. Introduction of the jet airliner. Outlook for airline traffic. Volatile nature of airline stocks. Position of issues today and relative market position.

Program #14: Sources of Information

Brief history and explanation of Moody's Investors Service, Standard & Poor's Corporation and Walker's Manual of Pacific Coast Securities. Wide variety of investment and statistical information available. Trade journals, government publications, public library facilities, broker and dealer literature, corporate publications, periodicals and newspapers.

Program #15: Growth Stock Approach Versus Basic Value Approach

Historical record of package of growth issues compared with record of higher-yielding income stocks. Difficulty of finding the exceptional growth issue. Are high price-earnings ratios justified? Risks in growth stocks. Fads in popularity—life insurance issues 1955, airlines 1946, electronics 1959? What to look for in seeking out undervalued situations. Basic statistical ratios. Recognizing basic value before it becomes popular.

Program #16: Stock Market Outlook

Forces behind the bull market. Rising corporate profits, dividends, confidence. Effect of institutional buying. Have we inflated the hedge against inflation? General statistical comparisons between today's market and past bull markets. Possible reasons for upset. Outlook as seen by guests.

Several conclusions can be reached regarding such a series:

Don't assume that the audience is not reasonably intelligent even though it may be unsophisticated regarding investments.

Keep the subject matter relatively simple. You cannot insert too many new words, terms and thoughts in a 30 minute show and still have the audience with you.

Keep the conversation moving toward a definite goal. When the guests start to stray too far from the chosen path, don't hesitate to swing the comments back in line.

Keep the questions uncomplicated and easily answered. All of us can think of an exception to a general rule on which we could comment; forget it and try to put the point over without being too technical.

Don't use a script. A panel show can be dull when the experts stick closely to prearranged answers.

Use a brief outline. At the "rehearsal," review with guests the questions you intend to ask so that they will not be caught unaware. Add, delete, and change to meet the objective. Insist the guests answer in their own words rather than present a "canned" answer.

In choosing guests give consideration to two factors: the guests should fit the subject; most analysts lean toward certain areas of investment and can talk readily on their favorite subject. Also, attempt to have the majority of firms and institutions in the area represented.

The process of many Analysts working together creates better friendships and understanding. Undoubtedly the San Francisco Society has been strengthened by this mutual effort.

AIR REDUCTION

Company Incorporated

AIRCO 169th CONSECUTIVE COMMON STOCK DIVIDEND

The Board of Directors has declared a regular quarterly dividend of 62½¢ per share on the Common Stock of the Company, payable on September 5, 1959 to holders of record on August 18, 1959, and the thirty-first regular quarterly dividend of $1.125 per share on the 4.50% Cumulative Preferred Stock, 1951 Series, of the Company, payable on September 5, 1959 to holders of record on August 18, 1959.

July 22, 1959

T. S. O'BRIEN, *Secretary*

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general portland cement company

COMMON STOCK DIVIDEND

The Board of Directors of General Portland Cement Company has this day declared a quarterly dividend upon its Common Stock of 25 cents per share, payable September 30, 1959 to stockholders of record at the close of business on September 11, 1959. The stock transfer books will remain open.

HOWARD MILLER,
Treasurer

August 13, 1959

National Distillers and Chemical Corporation

N D
U.S.I.

INCREASED COMMON STOCK DIVIDEND

The Board of Directors has increased the regular quarterly dividend on the Common Stock from 25 cents to 30 cents a share. The first dividend at the new 30 cent rate has been declared payable on September 1, 1959 to stockholders of record on August 11, 1959. The transfer books will not close.

PAUL C. JAMESON
July 23, 1959 Treasurer

UNITED STATES LINES COMPANY

Common Stock DIVIDEND

The Board of Directors has authorized the payment of a dividend of fifty cents ($.50) per share payable September 4, 1959, to holders of Common Stock of record August 14, 1959.

WALTER E. FOX, *Secretary*
One Broadway, New York 4, N. Y.

American Metal Climax, Inc.

COMMON STOCK
Dividend No. 135

The Board of Directors has declared a dividend of Thirty Cents (30¢) per share on the Common Stock payable September 1, 1959 to stockholders of record at the close of business on August 21, 1959.

D. J. DONAHUE,
Treasurer.

THE DAYTON POWER AND LIGHT COMPANY

DAYTON, OHIO

148th Common Dividend

The Board of Directors has declared a regular quarterly dividend of 60c per share on the Common Stock of the Company, payable on September 1, 1959 to stockholders of record at the close of business on August 17, 1959.

GEORGE SELLERS, Secretary
August 7, 1959

MINNEAPOLIS GAS COMPANY

739 Marquette Avenue
Minneapolis 2, Minnesota

Common Stock Dividend

The Board of Directors of Minneapolis Gas Company, at a meeting held on July 14, 1959, declared a dividend of 37½ cents per share payable in cash on August 10, 1959, to common stockholders of record as of the close of business July 27, 1959.

G. T. MULLIN, President

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ALLEGHENY LUDLUM STEEL CORPORATION

PITTSBURGH, PENNA.

At a meeting of the Board of Directors of Allegheny Ludlum Steel Corporation held today, July 31, 1959, a dividend of fifty cents (50c) per share was declared on the Common Stock of the Corporation, payable September 30, 1959, to shareowners of record at the close of business on September 11, 1959.

S. A. McCASKEY, JR.
Secretary

INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 164 of one dollar and seventy-five cents ($1.75) per share on the preferred stock, payable September 1, 1959, to stockholders of record at the close of business on August 5, 1959.

GERARD J. EGER, Secretary

For the

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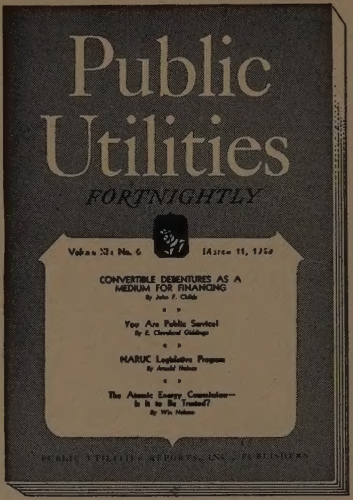

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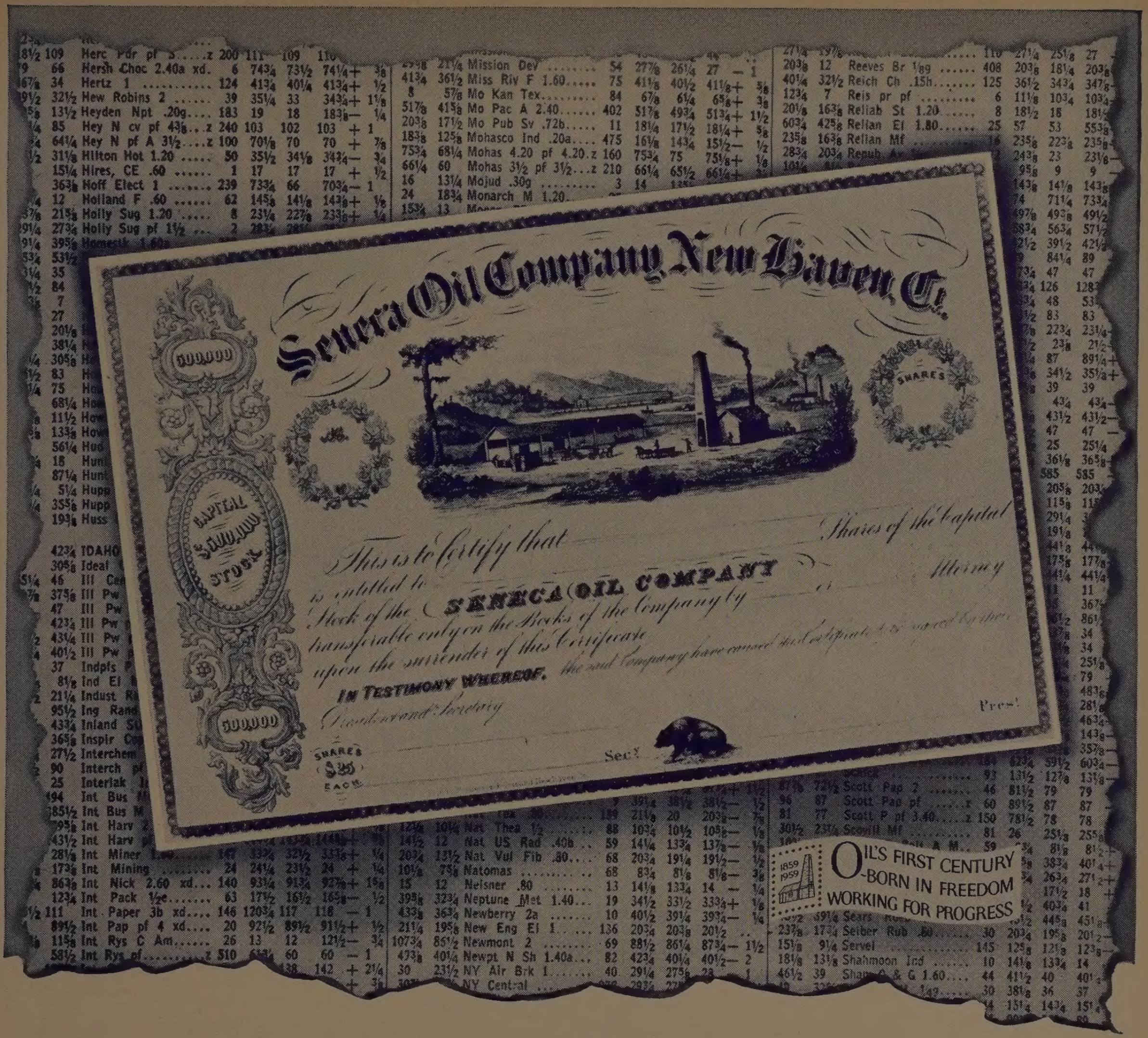

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